RAILROAD GAZETTE

FRIDAY, AUGUST 3.

Interlocking and Block Signals on the Boston & Albany Railroad.

The Boston & Albany Railroad Company has for some time past been introducing on its road the system of interlocking switches and signals and, with a view of thoroughly testing the practical value of the system, had some small interlocking machines erected, amongst them being a simple junction at Brookline and a junction of tracks with two at Huntington avenue, both places being in Boston.

These places having been put into service and found to work in every way satisfactorily, the company decided to equip its Boston yard with the same apparatus. The order to commence the work was given in October, 1882, and it was completed on Jan. 2, and put into service Jan. 14, 1883.

Notwithstanding the fact that the work was done in a very short time and under the worst conditions of weather, and some hitches might reasonably have been expected, there was comparatively little trouble in putting the apparatus into service. The slight delay that was experienced on the day of opening was due to the fact that those persons who understood the various combinations of the interlocking machine did not understand the movements of the traffic, and those persons who understood the traffic movements did not understand the interlocking combinations. This state of affairs lasted but a very few days, and at the present time all the work is done with the utmost facility and ease, and the operators can handle many more trains with much less trouble than they could on the ground. It is not, however, merely as a matter of facility in the movement of traffic that the railroad company introduced the system on its road, but with a view to the safety of the traveling public. All the most modern appliances for the safe working of passenger traffic are here introduced and everything has been done to render a mistake impossible.

All that part of the approaches to the depot worked or controlled at the switch tower is on a sharp curve, and this renders it difficult for trainmen to see for any distance where they are going, and as there is a slightly rising grade going into the station, and cars have to be pushed in at considerable speed, it is of vital importance that a distinct signal be given for every movement required, and also that such signal shall not be a false one.

There are four tracks entering the yard, the two centre ones, called Nos. 1 and 2, being the main in and outbound passenger tracks. At the mouth of the yard is the Albany street bridge. After passing this bridge the two tracks diverge, and, by means of switches, and with only one reverse curve, they spread themselves into eight tracks, six of which are inside the walls of the station and two outside. These tracks, for convenience of working and reference, are numbered odd on one side and even on the other. No. 1 track on the main line is continued as such into the depot, the tracks to the left being called 3, 5, 7 and 9, and those to the right 2, 4 and 6. The tower was erected on the only site available for the purpose without changing the plan of the yard, and except that it would have been better to have all the work in front of the men, instead of part being in front and part behind, it was the very best position, being central and having the best view possible of both incoming and outgoing trains. The limited space between tracts prevented the building of the tower at a uniform width, such as was necessary to contain the machine and give room for working. Being allowed no more than 8 ft. for this purpose up to a height of 14 ft. above rail level, it was necessary to make 14 ft. the height of the floor, a somewhat greater elevation than would have been preferred. At the floor line the building was projected 3 ft. over each side, making the plan of the floor 14 ft. in width and 32 ft. in length. The building is built on a stone foundation laid on piles. The framework, in accordance with the building regulations of the city of Boston, is of iron and paneled with corrugated sheet iron. Above the floor the tower is arranged to give the best possible view of the whole of the yard, and the architect has succeeded in his object remarkably well. The corner posts and muntings are as small as possible, and the windows having large panes of glass are brought nearly to floor line, thus enabling the operators to see trains or switches immediately beneath them. Projecting eaves will prevent the sun from being a source of discomfort to the operators. The limited space on the lower floor has been fitted up in an admirable manner for the convenience and comfort of the men, with a neat lavatory and appurtenances. Here also are stored the batteries for the electric work in connection with the machine.

The machine itself is fixed parallel with tracks, and consists of 64 levers of the Saxby & Farmer pattern. Of these 58 are working levers and six are left for future use in case of alterations or additions to the yard. This apparatus is so well known that it is not necessary to say more than that it is the kind having what is called "preliminary action of the locking gear," which means that the locking is actually done by the latch of the lever, and therefore is done *before* the lever can be released from the notch in which it is held. Of the 58 working levers 32 are used for signals, 12 are used for working 19 switches and 14 for working 16 facing point locks.

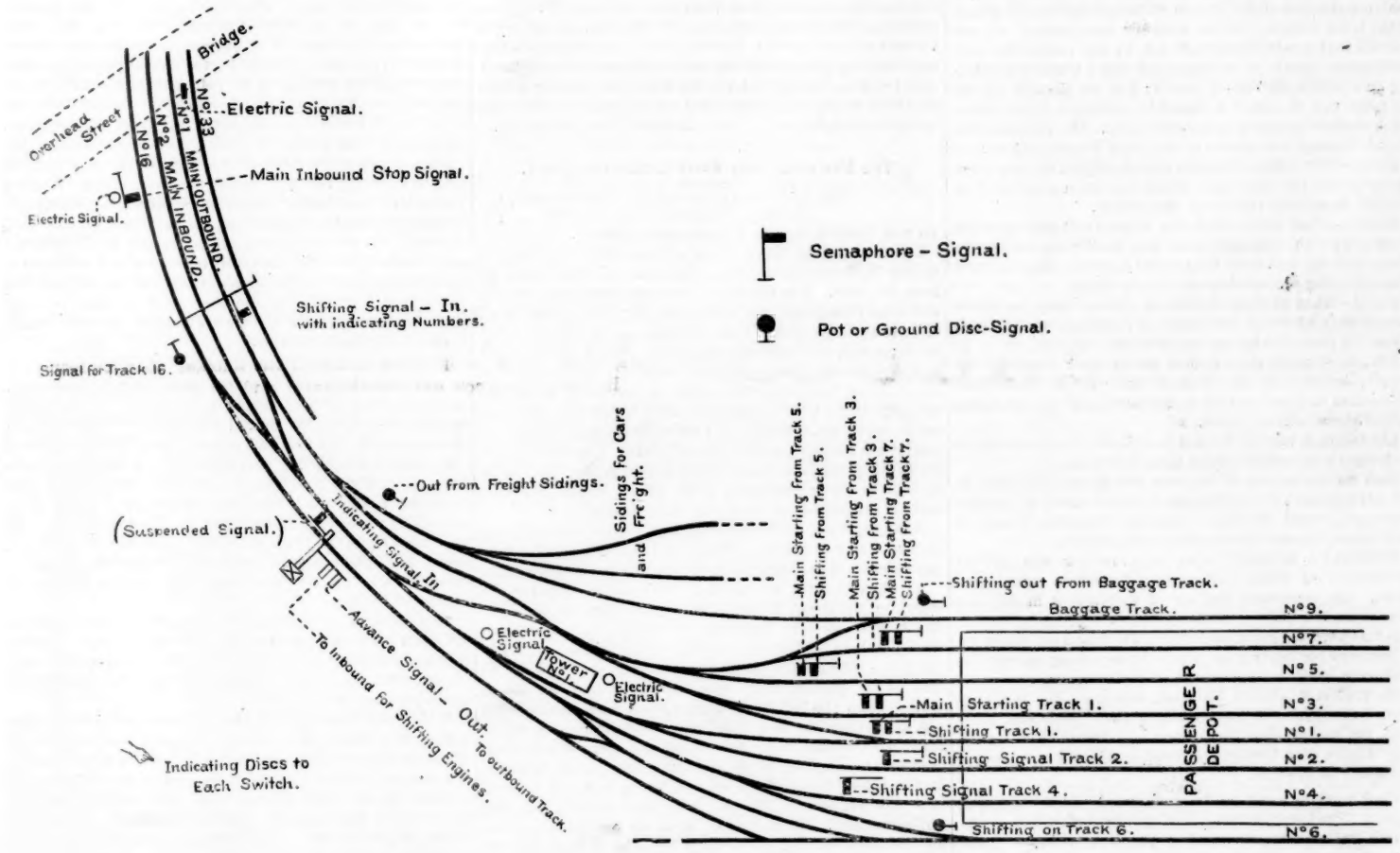
The levers are arranged so that all the incoming signals are at the end of the tower next incoming trains, all the outgoing signals are at the opposite end and all the switch and facing point lock levers in the centre. To be further readily distinguished, signal levers are painted red, switch levers black and facing point lock levers blue, and in addition on each lever is painted the numbers of the levers that precede it. For example on No. 13 lever, which is the inbound main signal to No. 1 track, is painted 37—31—29 in smaller figures, which denotes that those three levers must be pulled before No. 13 can be given.

Of the incoming signals all the seventeen are arranged on four posts, and yet each one is made to show plainly what it is, and which track is governed. Taking first the inbound main track, from which we are able to go to any of the eight tracks in the depot.

Approaching the depot the first signal is the main stop signal (No. 8). When this signal, which is placed several hundred feet to the rear of the junction or indicating signal, is lowered, the engine man is assured of a clear entry into one of the tracks of the depot, from the fact that one of the indicating signals must be lowered before the main signal can be lowered. The next signal is the indicating signal (Nos. 9 to 16), which is also an absolute stop signal, but is designed not only to indicate whether or not trains may enter the depot, but to show enginemen for which track the switches are set. These two signals, or sets of signals, are all there are for main inbound trains running into the depot from main outbound tracks. There is another set of indicating signals (Nos. 1 to 7) by which trains are controlled, and by means of which distinct signals are given for each movement required. These latter are entirely for shifting purposes.

A cross-over connection is made between freight track and inbound main, which is worked from the tower and for which is fixed a ground-disk signal (No. 17.) to control train or engine going into depot through the cross-over.

The indicating signals mentioned above are so constructed



SIGNALS AND SWITCHES IN THE BOSTON & ALBANY YARD, IN BOSTON.

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The indicating signals mentioned above are so constructed that one semaphore blade and lights answer for seven or eight distinct signals, when such signals refer to trains going from *one* track to one of several others. This is arranged by a system of numbers which are worked by the levers themselves. Any number being lowered will lower the semaphore and spectacle, showing clearly by day and night "danger," or "all clear." A reflector throws the light of a lamp on the numbers by night, making them quite distinct. Only one number can be lowered at a time, and the interlocking insures that before such number is lowered the track shall be set and the switches locked for the track to which it refers.

The outgoing signals consist of semaphores and ground-disk signals, some of the former of which are starting and advance signals, and others shifting signals.

Four of the tracks in the station are used exclusively as departure tracks for loaded passenger trains. At the fouling point with other tracks of each of these four tracks is fixed a signal post, having two semaphore blades, one above the other. The top arm is the main starting signal for the track to which it refers, and is exclusively for passenger trains ready to start away. It being desired to let such trains go away as quickly as possible and always by the nearest route to the outbound main track, special electric locking has been added (particulars of which will be given hereafter) to insure that such track shall be clear before the signal is given, and also that a second signal shall not be given until the first train has cleared, this being, of course, independent of block working.

Although it was desired to prevent a second passenger train from starting too soon, yet it was necessary that, so soon as one train had cleared conflicting switches, the engine of another train might do what shifting was necessary and without receiving the "right away" signals; hence, lower blades were fixed to the posts as shifting signals, by which trains can be started and sent to any part of the yard. By this means enginemen always know whether the track is set for "right away," or only for "shifting."

On each of the other tracks shifting signals only are fixed, no passenger train being sent therefrom. Signals 52, 53 and 64 from siding, baggage and tracks outside depot walls are ground-disk signals, entirely for shifting purposes.

For convenience of shifting two signals are fixed on one post at the point where the cross-over connects inbound and outbound train tracks at Albany street bridge. The top signal (No. 50) governs trains going to outbound main track, and the lower one (No. 51) governs engines shifting out on the inbound main track, under the protection of the main stop signal (No 8).

This system of signals, therefore, gives a distinct signal for every movement of a train in or out of the depot.

Every switch over which a train can be taken is fitted with a Saxby & Farmer patent facing point lock, which is an arrangement that insures not only that the switch shall be in position before the signal is lowered, but also that after the train is once on it no change whatever can be made until after it has passed the point. This is invaluable, preventing, as it does, the possibility of the train being split or sent on the wrong tracks by a too hasty action on the part of the signal man.

A special feature in this arrangement of interlocking is the introduction of the system of electric locking by means of the track circuit. In the ordinary interlocking we are assured that a switchman shall not, by any possibility, give conflicting signals or switches, and that a train once entering on a switch shall safely pass it; but we depend on the operator not to lower a signal for a train to enter upon a track already occupied by another train. By means of the electric locking and signals in this yard we are assured:

First.—That before the main starting signal for any track can be given, the track upon which the train is intended to go shall be entirely free from obstruction.

Second.—That after a train has started and got upon the track neither the same signal nor any conflicting one can be given until the first train has cleared a certain distance, such distance being protected by an electric signal.

Third.—That although shifting signals may be given immediately after the departure of passenger trains, such trains are protected by automatic electric signals.

Fourth.—That in the event of an operator lowering the main inbound stop signal when there is an obstruction between such signal and the indicating signal, an automatic danger signal will be shown.

Electricity is further utilized to indicate the positions of such signals as cannot be seen from the tower.

Such persons as may think from the description that in this arrangement the movement of traffic must be necessarily slow, would do well to note the following figures, or still better, inspect the working on the ground.

Between 7 a. m. and 11 p. m. there are over 800 distinct movements of trains and engines for which signals are given, the maximum number of movements in any one hour being 70. This is the daily record.

In this yard the great majority of the trains are made up or prepared for sending out again by switching across the passenger track, in consequence of limited space.

The Boston & Albany Railroad, however, has not only applied the system of interlocking to their yards and junctions, but has applied the system of electric block signalling to more than 100 miles of road, and is still extending it as rapidly as possible.

Block working must not be confounded with interlocking signals. The latter system is one by means of which all the signals and switches of a yard or junction within a given distance are worked from one point, usually an elevated tower. The means of working these signals and switches are placed in the hands of one or two men, and the mechanism of the interlocking insures that these men shall only give such signals and switches as may be consistent with safety.

Block working is a system of dividing up a track or road into a certain number of sections, of such length as may be most convenient for the traffic, and insuring that only one train or engine shall be in one section on one line of rail at the same time. This has been done on the Boston & Albany Railroad by the automatic electric signal actuated by means of the rail circuit with a closed circuit for keeping the signal at safety. The peculiar advantage of this block signal is that any obstruction on the track or derangement of it, such as a broken rail, an open switch, etc., will put the signal to "danger" as readily as will a train of cars. Directly a train enters one of these block sections it puts a protecting signal to danger, and the signal will remain in that position so long as any portion of the cars remain on the section.

The signals have an overlap of 1,000 ft., and therefore there must always be at least that distance between following trains.

The greater the density of the traffic, the shorter the block sections should be to have quick movement. Coming out of the Boston yard the sections are about ¼ mile long, and in consequence a very large number of trains can run with perfect safety at very short intervals, as the engineers always know that if they see a clear signal the section ahead is clear.

This signaling has been designed and executed by the Union Switch & Signal Company, of Pittsburgh, Pa.

Contributions.

Frog Number—Erratum.

In the communication from Mr. J. A. Anderson in our last number (page 491) the formula in the last line was misprinted. It should read

$$\frac{n^2+\frac{1}{4}}{g \quad n}$$

It was printed last week n 2 instead of n^2.

Trautwine's Rules for Frog Distance.

No. 530 NORTH SIXTH STREET,
PHILADELPHIA, July 23, 1883.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In your issue of 20th inst. are some communications on the subjects of frog distance and length of switch-rail. These articles refer to Trautwine's "Civil Engineer's Pocket Book" as giving rules and tables based upon the practice of considering the *toe* of the stub-switch as the beginning of the turnout curve.

I beg to remark that in the latest edition (twentieth thousand, 1883) new rules and tables are given, taking the *heel* of the stub-switch as the beginning of the curve, and measuring the frog distance from *E* to *A* of Mr. Parsons' sketch. This distance is equal to (exactly)

Twice the gauge × the frog number.

This, it will be seen, is very much simpler than the older formula.

Mr. Parsons takes exception to the rules and table given in the earlier editions of the "Pocket Book," and intimates that the frog distance given (for instance) for a No. 9 frog with 5-in. throw and a switch-rail 8 ft. long, is incorrect. I would ask whether Mr. Parsons has not overlooked the fact that this frog distance (of the earlier editions) is to be measured from the frog-point (*A* in his figure) *diagonally across the track* to the *toe* of the *outer* switch-rail, say near the lower *D* in his figure?

JOHN C. TRAUTWINE, JR.

The Use of the Joy Valve Gear in England.

No. 8 VICTORIA CHAMBERS, WESTMINSTER,
LONDON, England, July 16, 1883.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read with interest your account of the meeting of Master Mechanics at Chicago, appearing in your issue of June 29, 1883. I do not shrink from the criticisms which I find were passed upon my valve gear, for if the latter is all right in principle it will bear criticism and be all the better for it; if not, no praise will support it. But when I find one of the members of the association, and who apparently is an Englishman, speaking with a show of authority as to the adoption of my gear in England, and representing it to be vastly below the actual facts, I am constrained to think he has missed his dates by a couple of years. Therefore I ask the favor of the insertion of a line or two in the *Gazette* to correct an error appearing there which would otherwise mislead the profession needlessly on your side.

In England my engines are too well known to need any defense,—so well known in fact that I cannot conceive how any mistake of the kind referred to herein can have arisen.

Mr. Barrett gives me credit (I don't know why) for one engine on the Great Western Railway and two on the London & Northwestern Railway. He might have multiplied these numbers by 100 and been far nearer the mark. Without going into details the facts, generally, are, that at the time of his speaking there were 82 engines built for use in England and 116 building. This is apart from outside work and apart from the fact that I have definite arrangements made with several of the largest railway companies in England for the adoption of the Joy valve gear on all their future engines. Some of the engines above referred to have now run off nearly 100,000 miles each without any but trifling repairs. About half of them are high-class express engines daily running at speeds of 60 miles an hour for long continuous distances.

In addition to this adoption of my gear by the railways the Joy gear is in considerable use already for marine service.

There are now built or building in England engines of an aggregate horse power equal to 33,800 horse power. Probably about one-fourth of this quantity are complete, and in every instance where running the engines are giving perfect satisfaction. Among those building there are sets of engines of three cylinders of an aggregate of 5,000 horse power each set, so that while on the railroads I have some of the largest and fastest locomotives running, I have also some of the most powerful marine engines built and building, in addition to a very large amount of stationary engine work.

When I visited the United States last year, and especially when at the Master Mechanics' meeting at Niagara Falls, I was treated so cordially by the members and others that I now feel sure many of them whom I there met will be glad to hear I can give so good an account of my progress with the invention which I had the pleasure of bringing before them.

DAVID JOY.

P. S.—The Baldwin Locomotive Works have just completed a steam tramway motor with the Joy valve gear for the government of New South Wales.

Facts About Discontent with Wages as Illustrated by the Strike.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The telegraph operators' strike presents by its extent and the unusual intelligence of its participants an extremely good opportunity for the study of facts in connection with wages, and especially as to the causes of discontent with received rates. These causes are apt to be assumed as one, when in fact they may be many. It is safe to say that during the recent strike of railroad workmen the public had no knowledge whatever of the essential facts connected with such discontent as may have existed. Social science is admitted to be, if a science at all, the most difficult to formulate of any which the mind of man has attempted to create, and yet it is common and almost universal for writers on social questions to start with a basis of so-called facts, which arise out of the vague impressions of their own mind, and are mere unsubstantiated assumptions. Yet social facts above all others must be taken in with "the breath of circumstances," and by contact with the detail of human action, although mistakes in regard to social movements quite as often arise from thorough familiarity with certain limited aspects of the causes involved as by mere indefinite "breadth" of view.

It is difficult to grade men as to ability by their appearance, because some of the most necessary and serviceable qualities for special work give no outward sign; and in commercial life all work is to a greater or less degree special. No one, however, can come in contact with the best men among the strikers, without contrasting their apparent ability with their comparatively limited wages. These best men, as seen in New York, are picked from the force of the entire East and have reached very nearly the highest limit of their profession as measured by salary. A few are paid $100 per month, others $90, others $80, some first-class men as low as $65 or $70. The Western Union Company very properly rates wages by length of service as well as by the rapidity with which the operator can receive and transmit messages. Endurance, ability to take up work of any kind or to perform special work requiring large knowledge of commercial terms, etc., steadiness and general reliability, as well as loyalty to the company, are qualities which it is thus attempted to rate in dollars and cents. It may happen that two men sitting side by side and doing the same work receive greatly different rates of payment, measured by any given day's work. One of the strikers, for example, was some time since an operator at a railroad station receiving $35 per month; he entered the Western Union service on better wages, has several times secured an increase of pay, but is striking, as he claims, because he is receiving but $65 per month, while the man working on the next chair gets $80. Increase of wages and lessening of hours to the best men has several times been interfered with in the New York office by the discontent of others younger in years or less worthy in some of the many qualities which make up a perfect operator.

As I have said, the Western Union rates wages by length of service as well as by technical proficiency in operating. A sincere complaint—by which we mean one of the many realities underlying the official document of the Brotherhood—made by the best men is that loss of position in any office involves beginning over again, or a decrease from perhaps $90 to $70. An operator's work is very severe, his vacations few or none—besides consideration of health there are others which may make it best for him to leave his position for a time; his grievance is that when he does so it reduces his salary to the level of a young but successful operator who has not had one-quarter of his experience measured by years.

This implies that the company is able to fill the places of the older men with younger men who have fewer expenses and may be satisfied with less pay, since the promoted man *may* receive, at least for a time, $80 as against the $90 paid to his predecessor.

It is by no means certain that a strike would not have taken place at some time, whatever the action of the Western Union as regards other complaints affecting a large body of the strikers. These complaints are against the hardness and severity of the work arising from the economy of labor exercised by the company. The day men have worked nine full hours, the severer labor beginning an hour or two after the opening of the day and continuing very steadily until its close, with an intermission of 25 minutes at noon, which is not counted in the day's work. In the New York office the intermissions are obtained by one operator substituting for another. The night men have worked seven hours, and the company has always shown special favor to them; yet one of their complaints arises from the fact that the night man must work until he is relieved, this rule sometimes requiring two or three hours of labor at a time when the strain is most severely felt. Complaint arises, not because men are not paid for over work, but that over-work is necessary at such a time. The position of the best men in regard to Sunday work is not a request for more pay, but for sufficient pay to enable them to hire substitutes whenever they desire to do so.

The Western Union abolished Sunday work one week before the strike. In New York the rules required a man to work one Sunday in six, in other places one Sunday in three, or in various fractions of total Sundays.

No candid person can deny in view of all the facts that the Western Union is responsible for the strike at this time, because it has confessed by these changes that the work required was excessive. On the other hand there is good reason to believe that so large and well organized a society as is the Brotherhood would hardly have remained content until it had tried its strength in curing the discontent of its members as regards wages. That this discontent was intelligently directed, I do not believe. Although the Western Union has undoubtedly been willing to take full advantage of its position to reduce the rates and increase the hours of labor, there is little reason to suppose that the mass of men have been cheated out of those results which the working

out of the commercial laws of supply and demand would have accorded them. The best men do not complain so much of the wages they are receiving as of results which are evidently due to the pressure of younger and equally able men into the service. It is to be regretted that at such a time the public press should be content to do so much preaching and so little to investigate and bring to light the real condition of things, since such periods of public attention to any side of life afford a peculiar opportunity not merely to enlighten the general public but to assist the laborer to a reasonable view of his own condition as affected by commerical laws. Instead of this we have injurious comparisons made by men, leaders of public opinion, between the telegrapher's wages and labor and the typesetter's, as though the only consideration involved in commercial questions were pure financial law. The telegraph operator in choosing his business was influenced by human motives and not by financial laws. He wished an easy profession not involving physical labor, he wished respectability, and he hoped for large opportunities. He has become so numerous that the opportunity he hoped for has disappeared—although he often finds it in other callings within easy distance from his acquired position. For the Western Union I have no sympathy. It has been a hard, ungenerous and unfair master; over-working its men and meeting their generous ambitions with a mean and grasping spirit. But I believe the true method of discussing any public question is upon a basis of such facts as can be obtained.

SPECTATOR.

Special Cars for Special Freights.

TO THE EDITOR OF THE RAILROAD GAZETTE:

During the past twelve years I have, whenever opportunity has offered for doing so, endeavored to convince railroad men of the fact that, in order to secure the best possible economic results, a manager should use for the transportation of each of the several articles of freight persistently shipped on his road a car specially adapted to the handling of that article in the most convenient and speedy manner possible.

All material that may be "dumped" he should handle in cars contrived to dump it; and even where all dumpable materials move in but one direction on his line, and where, consequently, he may find himself obliged always to haul his dump-cars one way empty, he should adhere to this practice.

When dumpable freights are moving in each direction—as, for instance, where coal moves west and iron ore eastward, the point at which the coal is delivered being that at which the ore is received for rail transportation—the use of the dump-car is certainly very clearly indicated.

In the past decade we have very considerably improved our roads, our train service, our motive power and the running gear of our cars, and can now move freight trains at less cost for a given service, with more regularity and at a higher speed than formerly. We can give a freight train good dispatch over our lines; but what profit is there in rapid movement of the train if when delivered at their destination the cars stand for days awaiting discharge, and still other days awaiting reloading?

Of cars of all kinds (including oil-tanks, construction cars, company's fuel cars, etc.) used for moving "freight," there were in the United States in 1880 about 430,000; and the cervice performed by this equipment was equivalent to the sarrying of 10 tons per car about 144½ miles per week. Allowing the average progress of freight trains to have been eight miles per hour, the round trip (of 289 miles) occupied 36⅛ hours. So, of the 168 hours of the entire week the average car stood still 131⅞ hours, or 78½ per cent of the time.

I believe that some long "trunk" lines, having a persistent traffic in coal, lumber, live stock and grain, get results somewhat better than this; but lacking definite information as to quantities of freight handled in "line" cars and "foreign" cars on these routes, one cannot satisfy himself on that point.

One such route owned, in 1881, 15,347 freight cars, all told. Had all the freight hauled on that route, in that year, been carried in the company's own cars, the service would have been equal to the carrying of 10 tons per car 253⅛ miles per week, and with progress of freight trains equal to eight miles per hour, the cars would have stood still no more than 62⅛ per cent. of the time. But the accounts of the road show a *debit balance* equal to nearly 4 per cent. of the freight-earnings, charged to hire of cars. In view of the facts in the case one may fairly conclude that the service was not very much better than that above given as representing the average performance of the equipment of the whole country.

I submit for consideration and criticism the assertion that we may reasonably expect to get, eventually, from our freight cars more than twice the service now secured.

We are now hauling freight at a cost, per ton per mile, less than half that ruling ten years ago, and have made that reduction without having materially improved our modes of performing "station labor." Indeed, on most lines on which traffic has largely increased within the period named, the per cent. of earnings going to pay for "station labor" is now greater than heretofore. We have largely increased the work to be done without proportionally enlarging or improving the means for doing it.

If we better our means for handling and loading and unloading freights, to the extent reached in improvements already made in other directions, we may make our freight cars perform even more than twice the service that they do now.

Delays of cars at certain points are due to a complication of causes, and we cannot cure them by application of any simple remedy; but there are means by which we may at once mitigate the evil, and thereby gain a step toward a final removal of the whole trouble. Were all "dumpable" freights such as coke, coal, ore, limestone, etc., forwarded in cars specially adapted to discharging those freights by the operation of dumping, and were such freights at the same time run, as far as practicable, in trains by themselves, the periodic, and in some cases chronic, condition of blockade to which some yards are now subject would be largely bettered.

Taking the compendium of the Tenth Census as a guide, I calculate that the dumpable material hauled by rail in this country in 1880, exclusive of grain, aggregated something more than 91,000,000 tons; and I believe that not more than 20 per cent. of this material was dumped.

I do not know that any grain was dumped. According to the above estimate the amount of dumpable material (besides grain) handled by shoveling, was about 72,800,000 tons. The sum paid for that work was not less than $3,640,000. The cost of shoveling grain was probably more than that.

But large as this aggregate cost of shoveling is, it is a trifle when considered in comparison with that arising from those delays of cars that are an inevitable consequence of the practice under which the unloading of dumpable material by shoveling is necessary. Of the freight hauled in 1880, materials that might have been dumped made up about 46 per cent. If this had been all hauled in cars made to dump it at an insignificant cost of time and labor, the roads would have saved almost all the money paid for unloading cars by shoveling; and not only that but would have been able to do their business with an equipment of rolling-stock much smaller than that which they were actually obliged to keep in commission.

We should provide a dump car specially suited to handling either coal, ore, sand, cinder, ballast or limestone; and another specially suited to carrying and dumping coke.

For grain and other freights demanding protection from the weather, we should have special cars.

We should haul lumber, timber, building stone, railroad iron, and undumpable weather-proof freights generally, on "flats."

We should run our cars of each kind in the trade for which they have been prepared; should not divert box cars and stock cars from the traffic for which they have been built.

A Lake Shore box car, for instance, on its way west from New York, being sent away off its route, to Connellsville to get a load of coke for Chicago, might very well go to Chicago and return, loaded, to New York in the time necessary to its coke excursion. And moreover the handling of coke in box cars is a ruinous practice, in that it entails upon the consumer of the coke (the blast furnaces mostly) a tax that, added to the tax consequent upon unloading all their other stock by hand, is insupportable. You may at the first glance smile at this statement; but it is a fact that this "unloading" tax borne by our furnaces is an enormous burden, largely aggravated by the extra cost of the handling of coke in cars not suited to the traffic.

Our blast furnaces used in 1880, 2,128,255 tons of coke, or 177,355 car loads of 12 tons each. The cost of loading all this into box cars or stock cars *extra* to the cost of loading into open crates would be not less than $70,000; the sticks placed across the doorways of the cars, allowing six sticks for each door (each stick being 2½ in. x 2½ in. x 6 ft.), would aggregate 4,329 cords, *solid* measure, of good, sound wood, worth about $12,987; and the cost of unloading, *extra* to the cost of unloading from proper dumps, would be not less than $150,000.

Of stock *beside coke*, the furnaces, in the year named, used 7,256,684 tons of ore; 3,169,149 tons of fluxing material (limestone), 2,615,182 tons of anthracite coal, 1,051,753 tons of bituminous coal, and 354,048 tons of mill cinder and other material, or 14,446,816 tons in all, not counting some 808,647 tons of charcoal used; of which, however, a considerable proportion was moved by rail. The cost of unloading and handling this stock, *extra* to the cost that would be necessary were proper dump cars used, was not less than $1,000,000; and we thus have extra cost, on the 16,575,071 tons of coke and other stock, of at least $1,232,987. And the losses (on production) consequent upon irregularity of supply of coke which arises from the inability of the railroads to regularly provide transportation; which, in turn, arises from the entirely inadequate supply of proper coke cars employed exclusively in the coke trade, amounted to about $1,000,000 more.

As here estimated, the "extra" cost and losses incident to the coke traffic alone of the blast furnaces, amounted to $1,232,987, which sum would pay for 2,500 15-ton coke-dumpers, an equipment sufficient for the supply of all the furnaces in operation in 1880.

The use of dumpers would simplify and facilitate operations at furnaces, and reduce cost in various directions other than those above indicated. Furnace men will explain if asked. Impracticable to go into further details here.

Our coke-dumpers would make the return trip to the ovens empty; but there are many instances in which coal-dumpers may with but little delay take return fares of ore. Fortunate the road where such conditions exist.

But we should not suffer cars to *accumulate* waiting for loads at one end of a road, when by hauling them over the line empty we can more promptly load them at the other end of the road.

There are instances of roads having a persistent traffic in coal from A to B for instance, and a persistent traffic in lumber from B to A.

The idea prevails that in such a case the cars hauling coal to B should, at any cost of delay, take lumber from B to A; and railroad men generally argue that on that line a dump car, even if it would discharge its load of coal absolutely without cost and without delay, should not be used except it be suited to taking lumber back to A.

Is that view of the matter based on good ground?

Suppose a railroad to be 100 miles in length from A to B.

Suppose coal to be moving from A to B, and lumber from B to A.

Assume cost of hauling loaded cars with 20 tons freight to be ¼ cent per ton of freight per mile, or cost from A to B	$10.00
Cost of hauling empty car from B to A	4.00
Cost of loading car with coal, at chute	.20
Cost of loading car with lumber, by hand	3.00
Cost of unloading car with lumber, by hand	2.00
Cost of unloading car with coal, by hand	2.00
Cost of unloading car with coal, by dump	.10
Cost of switching car at B, from coal dock to lumber yard (and *vice versa* at A)	.25

Then take a dump car of 20 tons capacity, and a "gondola" of like capacity, and run them thus:

20 tons. *Dumper.*	20 tons. *Gondola.*
Days.	
1. A to B, *loaded*.	1. A to B, *loaded*.
2. B to A, empty.	2. At B, unloading and reloading.
3. A to B, *loaded*.	3. B to A, *loaded*.
4. B to A empty.	4. At A, unloading and reloading.
5. A to B, *loaded*.	5. A to B, *loaded*.
6. B to A, empty.	6. At B, unloading and reloading.

On this schedule the dump car would make three trips loaded—60 tons—at say 1 cent per ton per mile—and would earn	$60.00
Her expenses would be:	
Hauling, loaded, 300 m. @ ½ ct. per mile per ton	$30.00
Hauling, empty, 300 miles @ $4 per 100	12.00
Loading, three times, @ 20 cts.	.60
Unloading, three times, @ 10 cts.	.30
	$42.90
Net earnings	$17.10
The "gondola" would make three trips loaded and earn	$60.00
Her expenses would be:	
Hauling, loaded, 300 miles	$30.00
Loading at chute, twice, @ 20 cts.	.40
Loading at B, twice, @ $3	6.00
Unloading at A, once, @ $2	2.00
" " B, twice, @ $2	4.00
Switching, three times, @ 25 cts	.75
	$43.15
Net earnings	$16.85

And there would be but 25 cents difference in favor of the dumper.

But while the dispatch above assumed for the dumper is entirely practicable, the unloading and reloading of the "gondola" in one day (discharging coal by hand and reloading with lumber, and *vice versa*, as assumed), is not practicable, and the schedule of the "gondola," under favorable conditions even, would be no better than as given below:

COAL.	
1. A to B, loaded, 20 tons.	
2. At B, unloading.	
3. At B, loading.	
LUMBER.	
4. B to A, loaded, 20 tons.	
5. At A, unloading.	
6. At A, loading.	
Earnings	$40.00
Expenses:	
Hauling	$20.00
Loading:	
At chute 2	.40
At B 1	3.00
Unloading	4.00
Switching	.50
	27.90
Net	$12.10

This would make a difference of $5 in favor of the "dumper."

And, again, let the gondola (or flat) be kept in the lumber trade (in which case there need be none of the "switching" that is necessary where she has to be moved from coal dock to lumber yard, and *vice versa*), and she may be made to accomplish in the six days considered three trips from B to A, loaded with lumber.

The dumper and gondola (or flat), if run each in the trade to which it is adapted, may, together, in the six days, transport from A to B 60 tons of coal, and from B to A 60 tons of lumber; whereas two gondolas carrying coal from A to B and lumber from B to A would transport only 40 tons of coal and 40 tons of lumber in the same time; and their gross earnings would be only $80, against the aggregate $120 of the dumper and flat.

In the foregoing statement I have estimated the cost of hauling an empty car to be 40 per cent. of the cost of hauling the same car loaded with 20 tons of freight.

The modern "gondola," carrying 20 tons, weighs about 10 tons, so the weight of the car is about 33 per cent. of the weight of car and load; and apparently my aforesaid estimate of relative cost is not unduly favorable to the dumper.

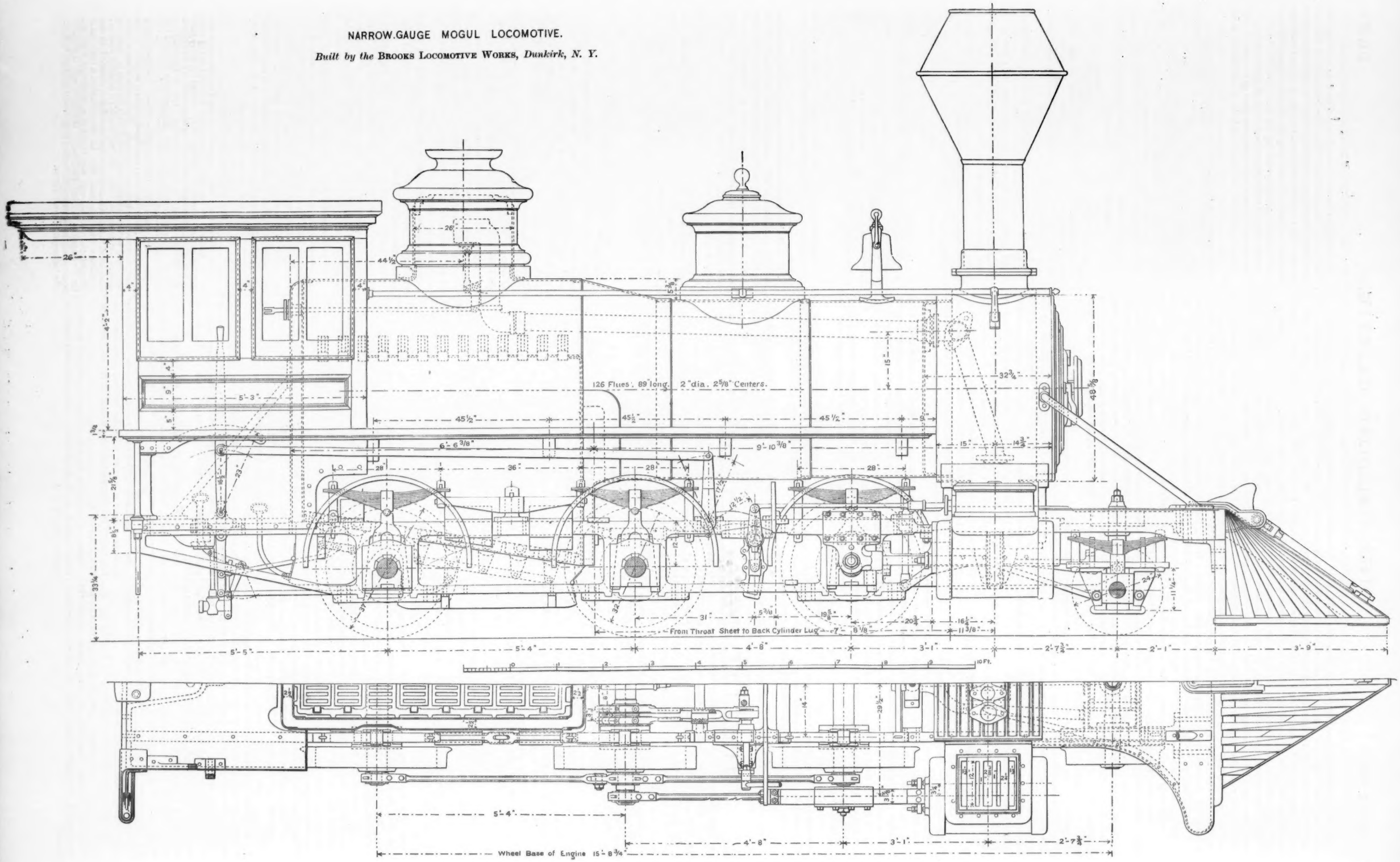
I do not overlook the fact that there are roads on which the cost of moving an empty car from one end (as B) to the other end (as A) is as great or even greater than that of returning the same car, loaded, from A to B; but the existence of such a condition does not necessarily affect net results in the operation under consideration, however it may enforce special modes of applying motive power. J. M. GOODWIN.

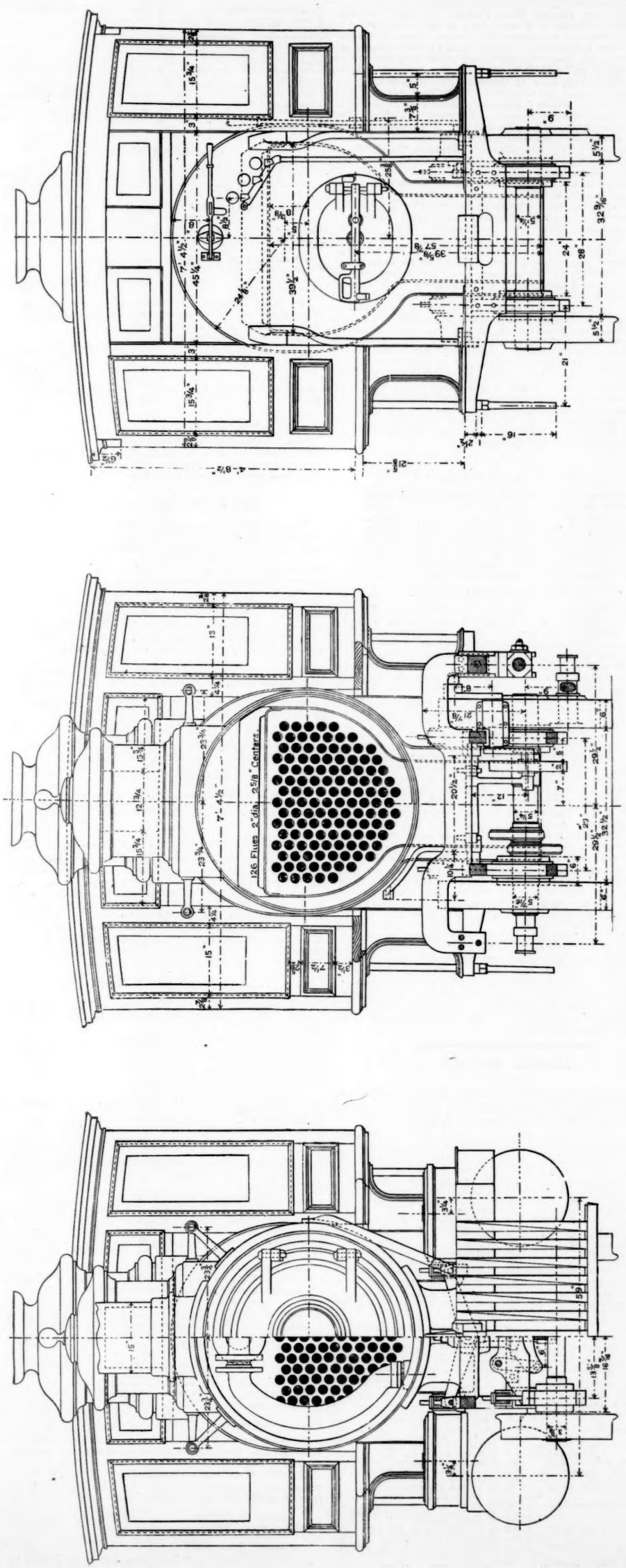
Train-Wreckers Caught.

A few days since there appeared in the *Times* an account of an accident on the East Tennessee, Virginia & Georgia Railroad near Knoxville, which was caused by some miscreant who had turned a switch wrong, whereby the train was thrown from the track, causing a loss of thousands of dollars. The officers of the road immediately secured the services of a detective, who went to work to ferret out the villain who committed the diabolical deed. Tuesday night he arrested Bob Williams, a colored man, who was at one time a section hand on the road. Williams, after a time, confessed having turned the switch, but refused to state his motive for doing so. He also implicated a colored woman, who lives near Knoxville, who, he alleges, assisted in the devilish work. He said that he once wrecked a train on a Mississippi railroad, and also wrecked a passenger train on the Chesapeake & Ohio Railroad. Williams will doubtless be tired of train wrecking before he gets out of this scrape. *Chattanooga (Tenn.) Times.*

NARROW.GAUGE MOGUL LOCOMOTIVE.

Built by the BROOKS LOCOMOTIVE WORKS, *Dunkirk, N. Y.*





NARROW-GAUGE MOGUL LOCOMOTIVE.

Narrow-Gauge Mogul Locomotive.

The accompanying illustrations give an elevation, plan and sections of a narrow-gauge mogul locomotive, which was part of the exhibit made at the Chicago Exposition by the Brooks Locomotive Works, of Dunkirk, N. Y. The specifications give the dimensions of the engine as follows:

WEIGHT AND GENERAL DIMENSIONS.

Gauge of road	3 ft.
Weight of locomotive empty	42,300 lbs.
" " " in working order	47,500 "
Weight on driving wheels	42,000 "
Total wheel base	15 ft. 9 in.
Distance between centre of front and back driving wheels	10 " 0 "
Distance from centre of main driving wheels to centre of cylinder	7 " 9 "
Transverse distance between centres of cylinders	4 " 11 "

CYLINDERS.

Size of cylinders	15 in. diameter, 18 in. stroke.
Piston packing	Dunbar's patent.

WHEELS.

Diameter of driving wheels	37 in.
Diameter of truck wheels	24 in.
Size of driving-axle journals	5½ in. diam., 6 in. long.
Size of truck-axle journals	4 in. " 5¾ in. "
Size of main crank-pin journals	3¼ in. " 3¼ in. "
Size of coupling-rod journals	2¾ in. " 2¾ in. "
Tires, front and rear drivers	Flanged, 5½ in. face, 2⅛ in. thick.
Tires, main driving wheels	Not flanged, 6 in. " 2½ in. "

BOILER.

Kind of boiler	Wagon top.
Diameter at smoke-box end	46 in.
Material of boiler	Otis steel.
Thickness of plates	5-16 in.
" " flue sheet	½ "
Material of tubes	Iron.
Diameter of tubes outside	2 in.
Length of tubes	7 ft. 5 in.
Number of tubes	126
Length of fire-box	72 in.
Width " "	18 in. at grate. 40 in. at crown-sheet
Depth " "	55 in.
Water spaces, sides, back and front of fire-box	2½ in., 2½ in., 2½ in.
Material of fire-box	Otis steel.
Thickness of plates	5-16 in.
" " flue sheet	½ in.
Grate surface	9.23 sq. ft.
Heating surface in fire-box	82.95 " "
" " tubes	497.05 " "
Total heating surface	580.00 " "

TENDER.

Number of wheels under tender	Eight.
Diameter of tender wheels	24 in.
Size of journals of tender axles	3½ in. diam. 6 in. long.
Water capacity of tank	2,000 gals.

ENGINE AND TENDER.

Total wheel base of engine and tender	38 ft.

The crossheads are of cast steel; the guide-bars of hammered iron, case-hardened, and the links, which are forged solid, are also of hammered iron, case-hardened. The feed-water is supplied to the boiler by two No. 7 monitor injectors, and the boiler is supplied with two 2½-in. Crosby pop safety valves.

The builders estimate that this engine will haul, in addition to the weight of engine and tender, the track being in good condition and comparatively free from curves, on a level, 1,259 gross tons; 20-ft. grade, 640 tons; 40-ft. grade, 390 tons; 60-ft. grade, 285 tons; 80-ft. grade, 219 tons, and on a 100 ft. grade, 176 gross tons.

Early Railroading in Kentucky.

A correspondent of the Quincy (Ill.) *Whig* writes as follows of the first railroad in Kentucky, later part of the Louisville, Cincinnati & Lexington road, now owned by the Louisville & Nashville:

The recent railway exposition at Chicago recalls to the mind of the writer that he witnessed when a boy the construction of one of the first railroads in the world. It was in the state of Kentucky, from Lexington to Frankfort, and was completed in 1838 or '39. You may be sure it was quite a primitive affair compared with railroads of the present day. I shall attempt, to the best of my recollection, to give the readers of the *Whig* a description of it.

A railroad had been built in England, and had excited the wonder of the world, on account of its great speed and capacity for hauling over its track numbers of cars at a time, containing tons of freight. The wonder and excitement produced by this new and novel mode of conveyance penetrated into the interior of Old Kentucky to Lexington, the home of the great and renowned Henry Clay, the acknowledged leader of the Old Whig party; and an agent was sent over to England to see and examine carefully this new and powerful device for moving the freights of the world on land, with a view of using the knowledge obtained in constructing a similar road in our "Old Kentucky home." The agent in due time returned, and described with enthusiasm all he had seen and experienced of the new wonder. The people of Lexington were not only wealthy and intelligent, but enterprising and ambitious to surpass both Louisville and Cincinnati. Located as Lexington is, almost in the centre of the state, with no navigable stream near enough to be of any advantage—Frankfort being about the nearest available point to the Kentucky River—her citizens at once determined to build a railroad to Frankfort. I do not remember much about the iniatory steps that were taken for right of way, etc., etc., but I recall the fact of the grading of the road, and the deep interest manifested by everybody in its construction. The agent who had visited England found the rails laid upon ties, about the same as now, but our Lexington engineers thought that wood was too temporary and destructable, so they adopted limestone sills 10, 15 and 18 ft. long, laid down longitudinally, with ties under them crosswise every 4 or 5 ft. The rails were flat iron bars 2½ in. wide, fastened with bolts to the stone sills by drilling holes and filling in around the bolts with molten sulphur or melted lead. Only passenger cars were used at first, and they were drawn by two horses. It took about three hours to make the run down to Frankfort, 28 miles.

The cars were two stories high and very curious looking affairs; the lower story was enclosed and set apart for the use of ladies and children, while the upper story, being open, was generally occupied by men. But in warm weather many ladies preferred to ride up stairs, as they called the top story. The first winter played the mischief with the stone sills, the frost cracking and breaking to pieces many of them, so they were all taken up and replaced with wooden sills. Many of the stone sills can still be seen lying alongside the track in places. The road is very crooked, because the engineers who surveyed it were averse to crossing

streams on bridges, so they went around the streams, alleging that it was an advantage to have the road crooked, so the conductor could look back and see that his train was all right. Between Lexington and Midway are two very deep cuts through the solid limestone, which would now be tunneled. Some years afterwards it was discovered that there was no tunnels on the road, as in England. A proposition was made to cover these deep cuts over and thus convert them into tunnels; but as there was no spare dirt on top, the expense of getting it up was thought to be too great, so the tunnel project was abandoned as not really essential to the running of the road. After a time a locomotive or steam car, as it was then called, was put on the road. This was a small and even more curious-looking affair than the passenger cars. It had no cab and no such tender as at present. The tender was a sort of flat car with room for wood and a hogshead of water, which was filled by pumping water from a well on the side of the track. The engineer and fireman were exposed to the weather, having no shelter whatever. The engine was a great curiosity, and was admired all along the line with the greatest interest, wonder and awe by the people of every class—more especially the black slaves, who regarded it as the work of the devil. There was no pilot or cow-catcher, but in lieu thereof there were two large square beams projecting out in front on each side of the base of the boiler, to which were attached two large hickory brooms, which swept the track and kept it clear of any ordinary obstruction. The grade for about a mile below Lexington was quite steep, the train always coming up it rather slow, and the boys would go down and jump upon those projecting beams and ride up in town on the steam car. This was thought to be a great feat until a colored boy slipped off and, falling under the driver, was decapitated, after which the boys were deprived of their free ride on the rail. Soon after the locomotive was placed upon the track there was an excursion given from Lexington to Frankfort on flat cars fitted up for the occasion by the railway company. When the train got near Frankfort it began to snow, the engine was immediately run under shelter to keep it from being injured, and the engineer positively refused to run it in the snow, fearing it might run off the slick track and get smashed up. The snow continuing to fall, many of the excursionists footed it back home. Such was railroading in "ye olden time." Frankfort being located in a deep valley, or rather hollow, on the Kentucky River, the cars were let down the steep grade by means of a rope wound round a drum or windlass, worked by a stationary steam engine on the top of the hill.

Picturesque Scenery on the Utah Line of the Denver & Rio Grande.

Mr. R. W. Raymond gives the following interesting account of the remarkable scenery on this recently opened route from Denver to Salt Lake:

Having just made the trip from Salt Lake City to this place by the Denver & Rio Grande line, I cannot write you on any other subject at present. There is not in the world a railroad journey of thirty hours so filled with grand and beautiful views. I should perhaps qualify this statement by deducting the hours of darkness; yet this is really a fortunate enhancement of the traveler's enjoyment; it seems providential that there is one part of the way just long enough and uninteresting enough to permit one to go to sleep without the fear of missing anything sublime. Leaving Salt Lake City at noon, we sped through the fertile and populous Jordan Valley, past the fresh and lovely Utah Lake, and up the Valley of Spanish Fork. All the way the superb granite walls and summits of the Wahsatch accompanied us on the east, while westward, across the wide valley, were the blue outlines of the Oquirrh range. One after another of the magnificent cañons of the Wahsatch we passed, their mouths seeming mere gashes in the massive rock, but promising wild and rugged variety to him who enters—a promise which I have abundantly tested in other days. Parley's Cañon, the Big and Little Cottonwood, and, most wonderful of all, the cañon of the American Fork, form a series not interior to those of Boulder, Clear Creek, the Platte and the Arkansas, in the front range of the Rockies.

Following Spanish Fork eastward so far as it served our purpose, we crossed the divide to the head-waters of the South Fork of Price River, a tributary of Green River. It was a regret to me, in choosing this route, that I should miss the familiar and beloved scenery of Weber and Echo cañons—the only part of the Union Pacific road which tempts one to look out of the car-window, unless one may be tempted by the boundless monotony of the plains or the chance of a prairie-dog. Great was my satisfaction, therefore, to find that this part of the new road, parallel with the Union Pacific, but a hundred miles farther south, traverses the same belt of rocks, and exhibits them in forms not less picturesque. Castle Cañon, on the South Fork of the Price, is the equivalent of Echo Cañon, and its equal or superior in everything except color. The brilliant red of the Echo cliffs is wanting. The towers and walls of Castle Cañon are yellowish-gray. But their forms are incomparably various and grotesque—in some instances sublime. The valley of Green River at this point is a cheerless sage-brush desert, as it is farther north. To be sure, this uninviting stream, a couple of hundred miles farther south, having united with the Grand, and formed the Rio Colorado, does indeed, by dint of burrowing deeper and deeper into the sunless chasms, become at last sublime. But here it gives no hint of its future sombre glory. I remained awake till we had crossed Green River, to make sure that no striking scenery should be missed by sleep. But I got nothing for my pains except the moonlight on the muddy water; and next time, I shall go to bed comfortably, proving to the conductor that I am a veteran and not a tender-foot.

In the morning, we breakfasted at Cimarron, having in the interval passed the foot-hills of the Roan Mountains, crossed the Grand, and ascended for some distance the Gunnison, a tributary of the Grand, the Uncompahgre, a tributary of the Gunnison, and finally a branch, flowing westward, of the Uncompahgre. A high divide at the head of the latter was laboriously surmounted; and then, one of our two engines shooting ahead and piloting us, we slid speedily down to Cimarron. It is in such descents that the unaccustomed traveler usually feels alarmed. But the experience of the Rio Grande Railroad people is, that derailment is likely to occur on up-grades, and almost never in going down.

From this point, comparison with the Union Pacific line in the matter of scenery ceases. As everybody knows, that road crosses the Rocky Mountains proper in a pass so wide and of such gradual ascent that the high summits are quite out of sight. If it were not for the monument to the Ameses, there would be nothing to mark the highest point. For all the wonderful scenery on the Rio Grande road, between Cimarron and Pueblo, the Union Pacific in the same longitudes has nothing to show. From an artistic stand-point, one road has crossed the ranges at the most tame and uninteresting point that could be found, and the other at the most picturesque.

At Cimarron, the road again strikes the Gunnison, and plunges into the famous Black Cañon. In length, variety, and certain elements of beauty, such as forest-ravines and waterfalls, this cañon surpasses the Royal Gorge of the Arkansas. There is, however, one spot in the latter (I mean, of course, the point where the turbulent river fills the whole space between walls 2,800 ft. high, and the railroad is hung over it) which is superior in desolate, overwhelming grandeur to anything on the Gunnison. Take them all in all, it is difficult to say which is the finer. I have usually found the opinion of travelers to favor the Gunnison Cañon. But why need the question be solved at all? This one matchless journey comprises them both; and he who was overwhelmed in the morning by the one, holds his breath in the afternoon before the mighty precipices of the other. To excuse myself from even hinting such folly as a comparison of scenery, I will merely remark that these two cañons are more capable of a comparison than different scenes usually are; for they belong to the same type—deep cuts in crystalline rocks.

Between them come the Marshall Pass (nearly 11,000 ft. above sea-level), over the continental divide, and the Poncha Pass, over the Sangre di Cristo range. This range contains Harvard, Yale, Princeton, Elbert, Massive (the peak opposite Leadville), and other summits exceeding the altitude of 14,000 ft. To the east of it is the valley of the Arkansas, into which and down which we pass, and so through the Royal Gorge to Cañon City and Pueblo, where we arrive before dark on the day after leaving Salt Lake.

Salt Lake, the Jordan Valley, Utah Lake, the Wahsatch, Castle Cañon, the Black Cañon of the Gunnison, Marshall Pass, Poncha Pass, the Arkansas Valley, the Royal Gorge—what a catalogue for so brief a journey! No wonder everybody who has made it is "wild about it." If enthusiastic urgency of recommendation from every passenger has any influence (and I know it has a great deal), this road will continue to be, as it is at present, crowded with tourists. It furnishes a delightful route for those who wish on the overland journey to see Denver (as who does not?) and to visit Colorado Springs and Manitou. All this can be done *en route*, without retracing the steps.

Vacations for Employes.

An exchange says that Mr. Robert Garrett, First Vice-President of the Baltimore & Ohio Railroad Co., has issued an official order allowing all the clerks and employés of the various departments of the road a two weeks' vacation, with instructions that they be furnished passes over the line. Of course their pay goes on just the same. This is an act of liberality that will be greatly appreciated by the employés, and can certainly entail no loss to the road.

Getting Even with a Hog.

One day last week an incident occurred on the Eastern Railroad, between Boston and Lynn, which deserves record. A very well-known citizen of Lynn, returning from Boston, found the cars very much crowded, and in fact only one seat not occupied by a passenger, but utilized by one to hold a valise. Mr. B. quietly lifted the baggage from the cushion with a view to setting it on the floor and filling the seat himself. "What are you doing there," sharply exclaimed the occupant of the inner seat; "that belongs to a friend of mine." "Never mind your friend," calmly replied Mr. B., "I will take care of him when he comes." Both parties ceased firing at this point, and the train moved on to Somerville, but no friend claimed the valise and seat, and Mr. B. reminded his fellow-traveler of that fact, who said: "Well, that gentleman will be here soon." But as Everett and Chelsea were passed, and there was no change in the situation, Mr. B. concluded to make a movement. He accordingly left his seat, and, walking to the rear of the car, said to the conductor: "There's a suspicious character in this car. A gentleman has left a valise in that seat, and I believe that man means to steal it, and I want you to stop him." The conductor replied: "Yes, I've seen that class of gentry before, and I'll attend to his case," whereupon Mr. B. returned to his seat. As the train slowed up at Oak Island the traveler gave signs of preparing to leave the car, observing which, the conductor approached. As was expected, the traveler grasped the valise, but the conductor interposed, ordering him to drop it. He indignantly refused, saying, "It is mine!" But Mr. B. here said, "You're a liar, sir! you told me that it belonged to a gentleman who was to occupy a seat." The traveler retained the valise and attempted to go, but the conductor sternly said, "If you don't leave that I'll arrest you! I will take it to headquarters in Boston, where you can have it by proving property." The Oak Islander, beaten at all points, was obliged to surrender on the terms offered, and left the train—a specimen of a baffled and disgusted hog (that's the word).—*Boston Post.*

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Boston & Lowell	23	Natchez, Jackson & Col	190
Boston, Revere Beach & Lynn	100	New Castle & Beaver Vy	495
Bur., Cedar Rapids & No	232	New Haven & Northampton	7
Camden & Atlantic	179	New London Northern	188
Canada Southern	396	N. Y. Cen. & Hudson River	7, 8
Canadian Government Roads	213	N. Y. & Greenwood Lake	478
Central Branch	251	N. Y., New Haven & Hartford	22
Central Iowa	396	N. Y., Ontario & Western	197
Central, of New Jersey	312	N. Y., Penn. & Ohio	213, 214
Central Pacific	163, 478	N. Y., Susquehanna & Western	356
Charlotte, Col. & Augusta	23	Norfolk & Western	180
Chesapeake & Ohio	138	Northern Central	123
Cheshire	332	Northern (New Hampshire)	340
Chicago & Alton	123, 142	Northwestern Ohio	495
Chicago, Bur. & Quincy	7, 196	Oxbourg & Lr. Champlain	407
Chi., Mil. & St. Paul	73, 167, 268, 265	Ohio & Mississippi	105
Chi., Rock Island & Pacific	340, 443	Oregon Improvement Co	278
Cincinnati & Eastern	463	Pacific Mail Steamship Co	478
Cincinnati, Ham. & Dayton	463	Panama	231
Cincinnati, N. O. & Tex. Pac.	39, 396	Pennsylvania Company	494
Cleve., Col., Cin. & Ind	181, 183	Pennsylvania & N Y	73
Cleveland & Pittsburgh	86, 495	Pennsylvania Railroad	150, 154
Columbia & Greenville	59	Philadelphia & Reading	32
Concord	356	Phila., Wil. & Baltimore	139
Connecticut River	105	Pittsburgh, Cin. & St. Louis	312
Delaware & Hudson Canal	100, 122	Pitts., Ft. Wayne & Chi	34, 495
Delaware, Lacka. & Western	122	Pittsburgh & Lake Erie	40
Del., Lac. & W. Leased Lines	407	Portland & Ogdensburg	100
Des Moines & Fort Dodge	262	Portland & Rochester	100
Denver & Rio Grande	362	Providence & Worcester	104
Erie & Pittsburgh	495	Rochester & Pittsburgh	41
European & North American	22	St. Joseph & Western	477
Fitchburg	40	St Louis, Iron Mt. & So	167, 231
Flint & Pere Marquette	262	St. Louis & San Francisco	197
Georgia	312	St. L., Vandalia & Terre Haute	246
Grand Trunk	56, 229	St. Paul & Duluth	104
Hannibal & St. Joseph	163	Savannah, Florida & West	312
Hanover Junc., Han. & Gettysb.	355	Sioux City & Pacific	213
Hartford & Conn. Western	7	South Carolina	99, 121
Housatonic	190	Sullivan County	427
Houston & Texas Central	39	Sussex	407
Huntingdon & Broad Top	121	Terre Haute & Indianapolis	362
Illinois Central	167, 180, 182	Texas & Pacific	231
Indiana, Bloom. & Western	463	Union Pacific	164
Indianapolis & Vincennes	495	Utah Central	246
International & Great No	231	Valley, of Ohio	280
Jeffersonville, Madison & Ind	495	Vermont Valley	427
Kentucky Central	246	Virginia Midland	100
Lake Shore & Mich. So.	278, 398, 396	Wabash, St. Louis & Pac.	167, 180
Lawrence	495	Warren	407
Lehigh Coal & Navigation Co.	134	Western R. R. Association	37
Lehigh Valley	73	West Va. Central & Pittsburgh	213
Little Rock & Ft. Smith	278	Woodstock	100
Long Island	73	Worcester & Nashua	40
Maine Central	21	York & Peachbottom	355
Manchester & Lawrence	395		

Louisville & Nashville.

This company makes the following brief statement for the year ending June 30, in advance of the publication of the full report.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Earnings	$13,214,824	$11,687,745	I. $1,2 7.079	10.2
Expenses	8,075,698	7,429,371	I. 646,327	8.7
Net earnings	$5,139.126	$4,558.374	I. $580,752	12.7
Gross earn. per m.	6,516	6,932	I. 484	8.0
Net earn. per m.	2,534	2,313	I. 221	9.6
Per cent. of exps.	61.11	61.97	D. 0.86	....

The large increase in earnings was made with a proportionately smaller increase in expenses. The average mileage was not much increased last year.

The income statement is as follows:

Net earnings as above		$5,'39,126
Interest on investments		132,770
Total		$5,271,896
Interest and rentals	$4,230,415	
Taxes	339,409	
		4,569,824
Surplus for the year		$702,022

This surplus was equivalent to 2.81 per cent. on the $25,000,000 stock now outstanding. The surplus for the previous year was $678,908. This showing is a better one than had generally been expected.

St. Paul, Minneapolis & Manitoba.

The following statement is published in advance of the full report for the year ending June 30. In it the earnings and expenses for June are partly estimated.

The following statement is given as to the $50,000,000 consolidated bonds authorized, about which there has been a good deal of talk: Held to retire prior liens, $19,426,000; sold to stockholders (at 10), $10,000,000; sold at par or over, $574,000; leaving $20,000,000, which amount can only be issued on road built or acquired, at the rate of $15,000 per mile on single track and $27,000 per mile for double track.

The statement of earnings for the year is as follows, compared with the actual earnings for the preceding year:

	1882-83	1881-82.	Inc. or Dec.	P. c.
Earnings	$9,000,000	$6,629 694	I. $2,370.306	35.7
Expenses	4,600,000	3,515,779	I. 1,084.221	30.8
Net earnings	$4,400,000	$3,113,915	I. $1,286,085	41.3
Gross earn. per mile	7,595	7,159	I. 436	6 1
Net " " "	3,713	3,363	I. 350	10.4
Per cent. of exps	51.11	53.03	D. 1.92	....

The income statement is as follows, interest being calculated for the full year on the St. Paul & Pacific, the first-mortgage and the second-mortgage bonds, and for half a year on the Dakota Extension bonds:

Net earnings as estimated		$4,400,000
Interest charges	$1,265.900	
Dividends, 8 per cent. on $20,000,000 stock	1,600,000	
		2,865,900
Surplus for the year		$1,534,100

The sinking fund for the first-mortgage bonds proceeds entirely from the proceeds of land sales, and no charge is made against the earnings for that purpose.

The earnings for the current year have shown a considerable increase, due, it is stated, to the falling off in shipments of material for the Canadian Pacific road. The decrease from this cause will probably continue, but there must be some gain from the ordinary traffic of the country served by the road, to which there has been a very large immigration for two years past.

Toledo, Ann Arbor & Grand Trunk.

This company owns a line from Toledo, O., to South Lyons, Mich., 61 miles. Its report is for the year ending Dec. 31 last.

The general account is as follows:

Stock		$1,900,000.00
Bonds		1,260,000.00
Accounts and balances		112,366.97
Income account, balance		8,135.66
Total		$3,2:0.502.63
Road and equipment	$3,230,415.48	
Supplies	4,015.69	
Accounts and balances	31,039 36	
Cash	15,032.10	
		3,280,502.63

The bonds are 6 per cent. first-mortgage bonds, having 40 years to run. The company is now trying to float an additional issue in London.

The traffic reported is as follows:

	1882.	1881.	Increase.	P. c.
Passengers carried	57,526	42,881	14,645	34 1
Passenger-miles	1,213,073	910,553	302,520	33.2
Tons freight carried	156,234	61 456	94,778	154.1
Ton-miles	7,361,227	2 520,058	4,841,169	192.1

The increase in coal traffic was 136 per cent. There was also a large increase in stone, brick and general freights.

The earnings for the year were as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Freight	$96,667	$47,586	I. $49,081	103.1
Passengers	35,244	24.575	I. 10,669	43.4
Mail and express	4.602	4,665	D. 63	1.4
Rents, etc	41,719	41,846	D. 127	0 3
Total	$178,232	$118,672	I. $59,560	50 2
Expenses	102.434	103,120	D. 686	0.6
Net earnings	$75,798	$15,552	I. $60,246	387.4
Gross earn's p. mile	2,922	1,945	I. 977	50.2
Net " " "	1,242	255	I. 987	387.4
Per ct. of expenses	57.48	86.89	D. 29.41	

Taxes are included in expenses, amounting last year to $3,276. The decrease in expenses, compared with the increase in traffic, is extraordinary.

The income account is as follows:

Net earnings, as above	$75,797.86
Interest on first-mortgage bonds	75,600.00
Surplus for the year	$197.86
Balance, Jan. 1, 1882	7,937.80
Balance, Jan. 1, 1883	$8,135.66

Additional connections have been made in Toledo by the

completion of the tracks and bridge of the Wheeling & Lake Erie road in that city. A short connecting line is proposed, which will connect all the roads entering the city. Additional business is expected to result from the completion of the Grand Trunk's line to South Lyons. The building of a grain elevator at Toledo is recommended.

Arrangements have been made to consolidate with the Toledo, Ann Arbor & North Michigan Co., which was organized to extend this road from South Lyons northward.

Rutland.

This company owns a line from Bellows Falls, Vt., to Burlington, 120 miles, and leases the Addison road, from Leicester Junction, Vt., to Ticonderoga, N. Y., 16 miles. The whole property is leased to the Central Vermont Co. at a yearly rental of $258,000. The report for the year ending June 30, relates only to the financial affairs of the company, and has no statements of the traffic or earnings of the road.

The controversy over the company's affairs has been so sharp, that, as a matter of interest, the balance sheet is given without condensation, as follows:

Liabilities.

Capital stock	$2,480,600.00
Do. preferred	4,000,000.00
Mortgage equipment bonds out	2,300.00
First mortgage bonds, 6 per cent	1,500,000.00
Second mortgage bonds, 5 per cent	1,500,000.00
Notes payable	30,000.00
Unpaid dividends, preferred	4,650.00
" " Addison	1,635.00
Unpaid coupons	7,490.50
Dividend and scrip outstanding	6,037.92
Total	$9,534,713.42

Assets.

Cash on hand		$1,743.44
Construction account items:		
First mortgage bonds R. & B. Railroad	$1,797,900.00	
Coupons on do	2,385,632.96	
Second mortgage bonds	1,191,000.00	
Coupons on do	1,126,380.00	
Construction acct. proper	2,502,613. 3	
		$9,003,526.19
Securities (Addison R. R. stock)		332,800.00
Five per cent. bonds (J. M. Haven)		5,000.00
J. M. Haven, deficiency as ascertained to date		42,717.92
Real estate		115,925.87
Rent due and unpaid		33,000.00
Total		$9,534,713.42

The directors report no change in the income of the road during the past year. The disbursements have been increased by the payments for scrip of $27,486.27, mostly on a judgment in February last in favor of F. Chaffee, recovered after a long litigation. It has been for some time, and until quite recently, the practice of the Treasurer to treat the rent of the road on the last of the month for which it was earned as cash on hand, while as a matter of fact it was not payable until the 25th of the following month. This system has been changed during the past year, and the earnings for June appear as "rent due and unpaid." This will account for the statement of earnings being $236,500, instead of $258,000, as heretofore. The payment of the judgment and the correction of the account as above referred to explain the necessity for passing the dividend in February last. Reports having been sent to the stockholders concerning the irregularities of the late Treasurer, both in the overissue of stock and the misappropriation of the money of the corporation. From an investigation beginning on or about the first of May, and continued uninterruptedly until the present time, it appears that the amount of preferred stock in excess of the legal amount is, at this date, 2,391 shares, and of the common stock 495 shares, and that the deficiency in cash is $42,717.92. In consequence of these deficiencies, no dividend can be made at this time. It is hoped that there will be realized from the property of the late Treasurer a sum sufficient to reimburse the road for the cash deficiencies, and from him, or the parties who hold the overissued stock, an indemnity for the same. The trial balance and statement of receipts and disbursements has been made up by the accountant conducting the examination of the books, and is certified by him as correct.

The income statement, as given by the company, is as follows:

Receipts.

Cash on hand July 1, 1882	$34,604.59
Rent of roads received	236,500.00
Rent of real estate	462.00
Dividends on Addision stock	9,084.00
Notes payable, cash borrowed	285,000.00
Total	$565,650.59

Payments.

Coupons first mortgage bonds	$90,628.00
Coupons 5 per cent. bonds	75,080.00
Rent of Addison Railroad	15,000.00
Dividend September 1, 1882	40,000.00
Scrip	17,616 57
Equipment bonds, 7 per cent	400.00
Interest on bonds and scrip	10,269.70
Salaries and misc. expenses (in part)	5,288.44
Taxes (in part)	5,365.74
Interest on loans	4,509.11
Notes payable, loans paid	255,000.00
Rent on real estate unpaid (credited former years as paid)	2,500.00
Paid on account back dividends	55.00
Paid for land in Brandon	2,300.00
J. M. Haven, deficiency (in cash only)	39,294.59
Cash on hand	1,743.44
Total	$565,650.59

The report of the accountant employed to examine the books of the company states that they are full of manifest errors, and have been kept with such utter lack of system that it is impossible to ascertain from them what the transactions have been, and the actual condition of affairs could be ascertained only with great difficulty by bringing in outside evidence.

Oregon & Transcontinental Co.

At the beginning of his annual report, for the year ending June 30 last, Mr. Henry Villard, the President, recalls the purposes for which this company was formed, as follows:

"*First*—To acquire and hold a controlling interest in the stocks of the Northern Pacific and Oregon Railway & Navigation companies.

"*Second*—To promote the company's own interest, as the holder of such stocks, by the creation of such auxiliary systems of railroad, steamship and steamboat lines as would tend to protect and increase the transportation business of these two corporations.

"*Third*—To engage in such other commercial and industrial enterprises as would tend to hasten and widen the general development of the states and territories traversed by the Northern Pacific and Oregon Railway & Navigation companies' lines."

The general balance sheet of the company is as follows:

Liabilities.

Capital stock	$40,000,000
Collateral trust mortgage bonds	7,215,000
Reserve to pay coupons maturing Nov. 1, 1883, May 1 and Nov. 1, 1884, being 18 months' interest at 6 per cent. on $7,215,000	649,350
Dividend due July 16	600,000
Loans due by company	8,561,457
Net income after deducting: Three dividends, including that of July 16, 1883; two years' interest on $7,215,000 (bonds from Nov. 1, 1882, to Nov. 1, 1884, inclusive); difference between subscription price and par on bonds sold; and all expenses of management	2,880,895
Total	$59,906,702

Assets.

Stocks—128,535 shares Oregon Ry. & Nav. Co., 151,300 shares Northern Pacific R. R. Co. pref., 162,792 shares No. Pacific R.R. Co. common	42,613,632
Less—40 per cent. installments still due on 38,035 new shares O. R. & N. Co.	1,521,400
Balance	$41,092,232
Northern Pacific dividend scrip—$1,679,361 at 90 and accrued interest	1,561,805
Construction accounts—Advances on account of building branch roads	758,751
First-mortgage bonds on branch lines	7,807,000
Loans due company, including advances to N. P. R.R. Co.	3,289,312
Cash in bank—A large portion of this was received from Northern Pacific R. R. Co. (proceeds of bonds delivered June 30) too late for use that day	5,181,101
Lands earned through construction of branch lines—433,000 acres at 50 cents	216,500
Total	$59,906,702

The installment (20 per cent., or $760,700) due July 2 on the Oregon & Navigation new stock was paid on that date.

Mr. Villard remarks: "To demonstrate the fitness and profitableness of our work, it suffices to refer to the fact that we have undertaken the general development of a territory representing one-sixth of the area of the entire United States, and which, in its beauty and variety of scenery, climatic conditions and wealth of agricultural, mineral and other natural resources, presents as sure guarantees of a prosperous future as any part of the Union. * * *

"As stated in our last annual report, only $23,760,000 of the $30,000,000 of capital stock authorized by the board of directors had then been paid for and issued. The remaining $6,240,000 have been paid for and issued during the current fiscal year, as also an additional issue of $10,000,000, authorized by the resolution of the board of Sept. 27, 1882, so that the outstanding capital stock at the end of the fiscal year was $40,000,000. Of the new issues during the year, 50,000 shares were exchanged for 50,000 shares of Northern Pacific preferred stock, and the remainder sold in large blocks for cash to various parties. * * *

"A statement of the holders of this company of Northern Pacific and Oregon Railway & Navigation stocks shows that at the close of the fiscal year, that is, on June 30, 1883, these holdings were:

	Shares.
Northern Pacific common	162,792
Northern Pacific preferred	151,300
Oregon Railway & Navigation (including new stock)	128,535

"The capital stock of the Oregon Railway & Navigation Company, upon the issue of the additional shares now being paid for at par in installments, will be $24,000,000, represented by 240,000 shares. With the shares to which it will become entitled upon the payment of the last installment, the company will own 8,535 shares more than an absolute majority of the outstanding stock, on which it will receive regular dividends at the rate of 10 per cent. The outstanding stock of the Northern Pacific Railroad Company was on June 30, 1883:

	Shares.
Common stock	490,000
Preferred stock (not deducting cancellations during the year 1882-83)	419,091
Total	909,091

of which total the above holding represents 34.894 per cent., or more than one-third of the existing stock capital. In the opinion of your board this holding is sufficient for continued control of the company. It is, however, in the power of the company to enlarge its ownership of Northern Pacific stocks at any time. We would mention that sufficient stock is owned and represented by your directors, as well as by the directors of allied corporations, to constitute, together with the holding of this company, an absolute majority."

The sale of 118⅛ miles of branch lines constituted one of the largest financial transactions during the year. "It was made in pursuance of a contract entered into between the Northern Pacific and the St. Paul, Minneapolis & Manitoba Co., for the permanent settlement of long-pending difficulties, by means of an exchange of auxiliary lines, which would make the Northern Pacific system a strictly east and west one, and that of the other company a north and south line. Your board considered it in the interest of this company, as the largest stockholder in the Northern Pacific, in order to put a definite end to the invasion of the latter's territory, to consent to the sale, at cost and interest, of the following lines:

Casselton Branch	46
Manitoba-Southwestern Colonization Railway	50
Pelican Branch of the Northern Pacific Fergus Falls & Black Hills Branch	22⅛
Total	118⅛

"The sale of the Casselton Branch also included 30 miles of grade. Under the same contract, this company bought, also at cost and interest, from the St. Paul, Minneapolis & Manitoba Co., 38 miles of finished grade, extending westward from the terminus of the Northern Pacific Fergus Falls & Black Hills Branch, on the Red River, and 20 miles more of partly finished grade upon another line.

"All the branch lines constructed and being constructed so far in Minnesota, Dakota and Montana, have been and will be financiered under the plan first communicated to you by circular of May 31, 1882, and subsequently reprinted in our first annual report. But in the case of one of the branches, the Columbia & Palouse Railway, in Eastern Washington Territory, the greater cost of the line compelled the adoption of a different plan, according to which a total issue of $30,000 per mile of finished road in first-mortgage collateral trust bonds will be made by this company against a like amount of the first-mortgage bonds of the Columbia & Palouse Railway Co. * * *

"The amounts of the advances to the Northern Pacific varied considerably in the course of the year. Their maximum amount was $8,338,833, while at the close of business on June 30th they were $2,719,299. All advances were secured by the pledge of the assets of the debtor company."

The Oregon & California Railroad Company's lines have been leased under an arrangement embracing:

"1. A construction contract between this company and the Oregon & California Co., for the completion of the latter's main line to the California boundary, with an option to complete its other authorized lines on stated terms.

"2. A temporary lease of the Oregon & California system for three years, with an option for its extension to 999 years.

"When the construction contract went into effect, about 127 miles of the total length of 177 miles of the main line remained to be completed. The estimates of the engineers, including liberal allowances for possible underestimates and other contingencies, call for $4,846,291 ready money for this work. Under the contract this company is to receive for it:

First-mortgage bonds	$3,670,500
Second-mortgage bonds	3,750,000

"Upon the completion of the Southern Extension and the Corvallis Junction line, the Oregon & California system will represent a total of 512 miles of standard gauge road, mortgaged and bonded as follows:

First mort. bds, $20,000 per mile on total mileage	$10,240,000
Second mort. bds, at $10,000 per mile	4,000,000
Fixed interest charge, being 6 per cent. on the former and 7 per cent on the latter	894,400
Minimum guarant'd div'd of 2 p. c. on $12,000,000 pref. stock	240,000
Total fixed charges upon completion of the main line	$1,134,400

"The first mortgage provides for payments to a cumulative sinking fund at the rate of 1 per cent. per annum from July 1, 1886."

The terms of the lease, as has been heretofore noted, are the pay ment for three years of fixed charges and 2½ per cent. on the preferred stock; after three years the rental is to be 35 per cent. of gross earnings, with a guarantee of an amount equal to all fixed charges and 2 per cent. on the preferred stock.

In construction, the work actually done during the year 1882 was as follows:

1. The line of the Manitoba, Southwestern Colonization Railway was completed for 50 miles from the city of Winnipeg, its starting point.

2. The Casselton branch was completed to a point 46 miles north of its junction with the Northern Pacific main line, and the grade extended 30 miles farther north. (Both these lines were sold during the year.)

3. The Fargo & Southwestern Branch, extending from Fargo, on the Red River, in a southwesterly direction, was completed for 56 miles to the town of Lisbon.

4. The Little Falls & Dakota Branch was finished from Little Falls to Morris, a distance of 87 miles.

5. The contract made for the completion of the Northern Pacific Fergus & Black Hills Branch, from Fergus Falls to Breckenridge, on the Red River, a distance of 26 miles, was fully carried out, and the line has been in operation to the last-mentioned point, from Wadena, on the Northern Pacific main line, to a distance of 78 miles, since the fall of 1882.

6. The Jamestown & Northern Branch was built from Jamestown, on the main line, for a distance of 46 miles. This mileage was finished late in the fall, but not regularly opened until the spring.

7. The Columbia & Palouse branch was graded for about 40 miles.

8. The line of the Puget Sound Shore Railroad from Tacoma, the terminus of the Northern Pacific on Puget Sound, to the important town of Seattle, was also commenced, but the contract for the work was let too late in the season to permit of much progress.

In the present fiscal year about 150 miles of new road will be built, which will be made up by new mileage along the various branch lines as follows:

1. The Fargo & Southwestern Branch will be extended in a southwesterly direction to the James River, so as to make the aggregate distance from Fargo about 100 miles.

2. The Northern Pacific, Fergus & Black Hills Branch is being extended from Breckenridge over the grade acquired from the St. Paul, Minneapolis & Manitoba Co., in a due westerly direction, to a junction with the Fargo & Southwestern, a distance of about 100 miles.

3. The Jamestown & Northern Branch will be constructed a distance of 47 miles, to the west end of Devil's Lake.

4. The Columbia & Palouse Branch is expected to be completed to the town of Moscow, a distance of 80 miles.

5. The Tacoma & Seattle line will also be completed during the present season. It will be a link in the all-rail coast route, in connection with the Oregon & California Railroad.

6. The line to the National Park, from Livingston, on the Northern Pacific main line, up the Yellowstone River, will probably be completed in August. The line will be a little over 57 miles long, and presents no great difficulties.

7. The means for the construction part of the work of the St. Paul & Northern Pacific Co. have been secured by the sale of $5,000,000 of its bonds. The line from Sauk Rapids to Minneapolis will be completed this year, and a good beginning made with the terminal facilities in both that city and St. Paul.

The formation of important terminal companies, namely, the Northern Pacific Terminal Co. of Oregon and the St. Paul & Northern Pacific Railroad Co. in Minnesota, has heretofore been referred to several times. Both companies are now at work.

In conclusion Mr. Villard discusses at much length the prospects of his several corporations, and gives most sanguine predictions of their future prosperity.

As to income and dividends, he says: "During the past year, three quarterly dividends of 1¼ per cent. each were declared, involving the distribution of a total of $1,650,000 to the stockholders. The general balance sheet published herewith shows a balance of undivided profits on June 30, 1883, of $2,880,895, which includes $1,679,361 Northern Pacific dividend scrip, representing, at the market value of 90 and accrued interest, $1,561,805. The regular quarterly dividends, at the rate of 10 per cent. per annum, on the company's holding of Oregon Railway & Navigation stock, to accrue during the current fiscal year, will be $1,190,262.

"The Northern Pacific Company accounted to its preferred stockholders for the earnings due to them on June 30, 1882. There is, therefore, due to the stock the net earnings for the year 1882-83. The main line will be completed and open for general business before Oct. 1. But, assuming that it will be operated as a complete through line only for nine months out of the year ending June 30, 1884, there will be due to the preferred stock up to the close of our new fiscal year the net income of the company, less mortgage interest, earned and to be earned during the last 15 months of the operation of the road as an incomplete line and during nine months of operation as a completed line. It is understood that the Northern Pacific Company will divide regularly and in money, from and after its completion, whatever earnings the preferred stock may be entitled to. We feel, therefore, justified in including 8 per cent. on our holding of preferred stock in our estimate of the income to become available during the year ending June 30, 1884.

"To sum up the available income and profits for the year 1883-84:

Balance of profits brought forward from last year	$2,880,895
Dividends on Oregon Railway & Navigation stock	1,190,262
Estimated dividends on N. P. preferred stock	1,210,400
Total	$5,281,557

"In addition there will be available income from loans and construction profits to be realized during the current fiscal year."

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EDITORIAL ANNOUNCEMENTS.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in rail road officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections appointments, and especially annual reports, some notice of all of which will be published.*

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RAILROAD EARNINGS IN JUNE.

Our table of railroad earnings in June, published this week, has reports from 77 railroads, which this year worked in the aggregate 59,162 miles of road, which is 5,736 miles (10.7 per cent.) more than they worked last year in June, and more than half of the total mileage of the United States. With this mileage they earned $32,245,302 this year, which is $2,703,828 (9.2 per cent.) more than they earned last year, and their average earnings per mile *decreased* from $553 to $545, or 1.4 per cent.—a very small amount, but following a large decrease in earnings last year. Of the 77 roads only 14 report any decrease in total earnings, but 29 have a decrease in earnings per mile, and among the latter are such important roads as the Atchison, Topeka & Santa Fe, the Central Pacific, the Chicago & Northwestern, the Denver & Rio Grande, the Iron Mountain, the Texas & Pacific, the Wabash, the Northern Pacific, the Pennsylvania, the St. Louis & San Francisco, the Manitoba, and the Union Pacific. There are many large increases in earnings per mile, but nearly all of them are by roads which still have very light earnings, and most of them by roads with comparatively small mileage, so they do not go far toward increasing the aggregate earnings. Thus there are 12 roads which had an increase of more than 20 per cent. in earnings per mile, and nine whose increase was more than 30 per cent., but these 12 roads had in the aggregate but 3,488 miles of road, while a single one of the roads that has a decrease has more than that; and their aggregate earnings this year, after this great increase, were but $1,108,690, which is but $317 per mile, while the average of the other 65 roads was $556. Not enough attention is paid to earnings per mile by investors and others who need to know the financial state of a railroad, and too much weight is placed on a very large percentage of increase, without considering how adequate, or the reverse, the earnings may have been in the year compared with. It seems to many evidence of great prosperity that the Vicksburg, Shreveport & Pacific had an increase of 86 per cent. in its earnings per mile in June; should they stop to consider that after all its earnings per mile were but $69, against an average of $545 for all roads reporting, they would see that there must be a great deal larger increase before the property can become valuable. This is an extreme case, it is true; but among the 12 roads that had an increase of more than 20 per cent. in earnings per mile, no less than seven still earned less than $300 per mile, and only three—the Elizabeth, Lexington & Big Sandy, the Flint & Pere Marquette and the St. Paul & Duluth—more than $400 per mile. The two last named had really large increases—the Flint & Pere Marquette from $464 to $595, and the St. Paul & Duluth from $457 to $598, bringing both among the roads with more than average earnings per mile.

As to the course of earnings of roads in different sections of the country, we considered that only two weeks ago from a list of 71 roads; and the only considerable addition now made is of Eastern roads, which compare as follows:

	Miles.	Inc.	P.c.	Earn. '83.	Increase.	P.c.
Eastern	284	....	....	$300,637	$15,975	5.6
Grand Trunk	2,321	96	4.3	1,368,165	125,035	9 1
Long Island	354	....	..	286,665	29,964	11.7
N. Y. & New Eng.	399	3	0.8	293,919	8,528	3.0
Northern Central.	322	...	....	476,163	10,344	2.2
Pennsylvania	2,060	160	5.0	4,156,872	63,115	1.5
Reading	1,560	560	56.0	2,810,489	1,095,759	63.9
West Jersey	186	181	10.7	108,697	14,249	15.2
	7,390	783	11.8	$9,801,607	$1,362,969	14.0

The very large increase in the mileage and total earnings of this group is due to the inclusion of the Central of New Jersey in the Reading statement—that is, the Central's earnings and mileage are given for this year but not for last year. The average earnings per mile, even, are vitiated by this statement, as the Central is a road of very large earnings. As the table stands, however, there is an increase in earnings per mile from $1,277 to $1,326. If we omit the Reading, we shall have but a small increase in mileage (from 5,830 to 6,053 miles, or less than 4 per cent.), and an increase in total earnings of $267,210, or 4 per cent., while the average earnings per mile increased only from $1,153 to $1,155. There are some very large and important roads in this list, but after all they are but a small part of the roads east of Michigan and Ohio, and we need returns from several others, like the New York Central, the Erie, the Lackawanna and the Boston & Albany before we can assume that these totals and averages represent the general condition of railroad business in the East.

These eight roads, it may be noticed, though they had but 12 per cent. of the mileage of the 78 roads reporting for June, had 29 per cent. of their earnings, their average earnings per mile having been $1,326, while those of the 70 roads were but $440. We may see by this what a great difference is made by the absence from the roads reporting of so many of those having very large earnings per mile.

In the table below we give the average earnings per mile in June of as many roads as possible for the past seven years:

Earnings per mile in June for seven successive years.

	1877.	1878.	1879.	1880.	1881	1882.	1883.
Ala. Gt. South	....	....	$80	$141	$178	$188	$249
Atch., Top. & S. F.	$264	$318	445	549	717	639	606
Burl., C. R. & Nor.	245	233	253	312	365	328	303
Central Branch	....	....	.. ..	....	324	143	264
Central Iowa	231	290	.. ..	385	473	347	283
Central of Ga	....	163	166	....	....	181	207
Central Pacific	736	660	662	710	819	742	701
Char., Col. & Aug	....	99	116	143	178	155	185
Chesapeake & Ohio	....	....	341	403	558	531	632
Chicago & Alton	529	530	527	735	757	726	769
Chic. & E. Ill.	314	381	417	424	659	541	585
Chic., Mil. & St P.	417	433	451	400	455	397	447
Chic. & N. W.	493	519	645	725	823	629	606
Ch., St. P. M. & Om.	....	214	326	299	426	360	348
Chic. & W. Mich.	....	....	174	238	346	236	334
Cin., Ind., St. L. & C.	621	619	647	668	632	594	523
Cin., N. O. & T. P.	....	....	....	....	595	562	622
Cleve., Ak & Col.	224	186	231	224	246	300	323
Den. & Rio. G.	214	294	272	585	753	499	389
Det., L. & North	....	....	447	473	....	504	581
Eastern	776	697	767	851	952	1,002	1,059
E. Tenn., Va. & Ga.	242	....	255	221	227	234	244
Evansville & T. H.	....	....	....	....	382	422	385
Flint & Pere M.	....	....	264	444	505	464	595
Hannibal & St. Jo.	559	471	388	614	654	531	566
Ill. Cen., in Ill.	547	529	539	597	686	549	576
Ill. Cen., in Iowa	237	303	299	332	434	368	413
Ind., Bloom. & West.	348	384	450	460	360	335	313
Int. & Gt. North	146	148	168	180	276	337	328
K. C., Ft. S. & Gulf	....	...	....	281	363	332	356
L. R. & Ft. Smith	....	....	.. ..	....	167	159	172
Long Island	....	....	....	....	539	725	810
Louisville & Nash.	558	531	518	592	667	445	512
Marq., H. & Ont.	....	....	....	....	1,587	2,111	1,082
Memphis & Charles.	157	199	....	....	....	225	269
Mil., L. S. & W.	....	....	....	....	191	253	269
Mo., Kan. & Tex.	328	264	282	362	452	378	405
Missouri Pacific	....	....	....	....	760	595	621
Mobile & Ohio	168	173	181	232	270	258	236
Nash., Chat. & St. L.	340	263	301	318	331	260	317
N. Y. & New Eng.	....	....	....	800	733	721	737
Norfolk & Western	299	281	230	313	366	409	405
Northern Central	1,005	941	967	1,286	1,495	1,447	1,479
Northern Pacific	....	....	309	351	546	542	464
Ohio Central	....	....	.. ..	.. ..	201	356	312
Ohio Southern	....	....	....	....	198	187	204
Pennsylvania	1,425	1,387	1,393	1,721	2,015	2,095	2,018
Peoria, Dec. & Ev.	....	....	....	224	202	211	291
Phila. & Reading	1,285	1,586	1,450	1,653	1,718	1,715	1,802
Richmond & Danville	203	232	253	300	298	304	342
St. L., A. & T H.—							
Main Line	....	....	355	544	626	508	439
Belleville Line	495	542	477	625	414	438	464
St. Louis & Cairo	137	132	121	232	230	178	203
St. L., Iron Mt. & So.	400	372	412	531	693	738	629
St. L. & San Fran	295	243	241	294	440	365	346
St. P. & Duluth	....	188	365	264	....	457	598
St. P., Minn. & Man.	....	....	340	371	548	930	576
Scioto Valley	276	283	177	219	305	327	363
South Carolina	189	159	174	210	246	249	260
Texas & Pacific	338	282	272	268	381	322	307
Tol., Cin. & St. L.	.. ..	....	...	....	120	138	123
Union Pacific	....	....	....	642	752	592	478
Vicksburg & M.	....	....	....	...	189	189	196
Wabash, St. L. & P.	.. ..	....	....	480	528	343	320
West Jersey	447	343	397	....	....	502	584

Here we have the following numbers of roads with larger and with smaller earnings per mile in June of previous years than they had this year:

In 1882	25	roads with	larger	and	40	with	smaller.
" 1881	32	"	"	"	28	"	"
" 1880	16	"	"	"	24	"	"
" 1879	6	"	"	"	39	"	"
" 1878	5	"	"	"	34	"	"
" 1877	7	"	"	"	26	"	"

Several of the roads show larger earnings per mile this year than in any other reported. These are the Alabama Great Southern, the Chesapeake & Ohio, the Chicago & Alton, the Cleveland, Akron & Columbus, the Flint & Pere Marquette, the Peoria, Decatur & Evansville, the Reading (which may be due to the addition of the Central of New Jersey), the Richmond & Danville, the Scioto Valley, the Central of Georgia, the Charlotte, Columbia & Augusta, the Cincinnati Southern, the Little Rock & Fort Smith, the Long Island, the Memphis & Charleston, the Milwaukee, Lake Shore & Western, the Ohio Southern, the St. Paul & Duluth, the South Carolina, the Vicksburg & Meridian, and the West Jersey. It should be said, however, that six of these have reported only for the last three years. There are others that show a decrease for more than one year, as the Atchison, from $717 in 1881 to $606 this year, the Central of Iowa from $473 in 1881 to $283, the Central Pacific from $819 to $701, the Chicago & Northwestern from $823 to $606, the St. Paul and Omaha from $426 to $348, the Denver & Rio Grande from $753 to $389, the Mobile & Ohio from $270 to $236, the Terre Haute Main Line from $626 to $439, the St. Louis & San Francisco from $440 to $346, the Texas & Pacific from $381 to $307, the Union Pacific from $752 to $478 and the Wabash from $528 to $326—all from 1881 to 1883. Some of these are very serious changes to the companies concerned.

For the half-year ending with June our table has reports from 79 railroads with an aggregate of 58,655 miles of road this year, which is 5,433 miles (10.2 per cent.) more than they worked in the first half of last year. With this increase of mileage they had an increase of $16,127,518 (9 per cent.) in their aggregate earnings, bringing them up to $194,486,040, but their average earnings per mile of road *decreased* from $3,352 to $3,316, or 1.1 per cent. Last year our table showed that the 66 roads which then reported had a *decrease* of 0.3 per cent. from their average earnings per mile in 1881, and in 1881 the 56 roads reporting showed a *decrease* of 0.6 per cent. in average earnings per mile. June was a month of heavy earnings in 1881 (there was an increase of 13.4 per cent. over 1881), but the winter and early spring had been very unfavorable. So far as these tables go, therefore, they indicate a continuous, but small, decrease in average earnings per mile since 1880.

There are 14 roads that report a decrease in total earnings for the last half-year, and 27 that had a decrease in earnings per mile. The larger decreases in earnings per mile are 10.8 per cent. by the Burlington, Cedar Rapids & Northern, 10.2 by the Central Iowa, 13.9 by the St. Paul & Omaha, 21.6 by the Denver & Rio Grande, 51.7 by the Des Moines & Ft. Dodge, (which with 64 per cent. more road earned 21 per cent. less money), 49½ by the Marquette & Ontonagon, 12.8 by the Iron Mountain, 18.7 by Northern Pacific, 24.3 by the Manitoba, 23.2 by the Toledo, Cincinnati & St. Louis, and 16.2 by the Union Pacific.

The largest increases are 30.8 by the Alabama Great Southern, 59 by the Lexington & Big Sandy, 38 by the Chicago Grand Trunk, 20.7 by the Cincinnati, Washington & Baltimore (late Marietta & Cincinnati), 19 by the Flint & Pere Marquette, 31½ by the Gulf, Colorado & Santa Fe, 23.7 by the Hannibal and St. Joseph, 25.8 by the Illinois Central's Southern Division, 27.2 by the Little Rock & Fort Smith, 40 by the Little Rock, Mississippi River & Texas, 76.3 by the Central Branch, 36.3 by the Western North Carolina, and 23.7 by the St. Paul & Duluth.

The roads with the largest and smallest earnings per mile in the half-year were:

Largest.	Per mile.	*Smallest.*	Per mile.
Pennsylvania	$11,868	Tol., Cin. & St. L.	$654
Reading	10,033	Western N. C.	770
Northern Cen.	9,145	Lex. & Big Sandy	872
Lake Shore	6,874	Des M. & Ft. Dodge	988
Eastern	5,796	Florida Transit	1,031
Chic. & Alton	4,441	L. R., Miss. Riv. & T.	1,042
Chic. & Grand Trunk	4,150	St. L. & Cairo	1,223
Missouri Pacific	4,119	Columbia & Greenville	1,239
N. Y. & New Eng.	4,082	Peoria, Dec. & Ev.	1,315
Hannibal & St. Jo.	3,996	Tol., Ann Arbor & G. T.	1,324
Iron Mountain	3,944	Ohio Southern	1,397
Central Pacific	3,916	Mil., Lake Shore & W.	1,463

It will be interesting to compare these earnings with the $3,316 which is the average of the 79 roads reporting. Besides the 12 roads named above there were only three roads that earned more than $3,500 per mile; but besides those above there were no less than 18 that earned less than $2,000 per mile. Some roads, mostly Southern roads, thrive and pay dividends on earnings not much larger, but to do this they must have a very light debt.

The first half of 1882, with which we have com-

pared heretofore, was in many respects very unfavorable. After June the immense winter wheat crop caused a great improvement on many roads and resulted in great confidence in the future of railroad property throughout the country, so that there was an almost universal and in most cases a great advance in the prices of stocks. The very bad winter wheat crop this year is likely to make the comparison unfavorable for many of the roads that made a good showing in July, August and September last year, and the diminished production in some important manufacturing industries is likely still further to affect earnings unfavorably hereafter, compared with last year. There is a prospect for a much better corn crop than last year, but this will not affect earnings appreciably until about December, and a good crop is indeed by no means secure yet, as an early frost may cut it off, and there is no such confidence in the immediate future as there was last year. If the corn crop turns out a thoroughly good one (and if frost holds off till October in the latitude of Chicago, a yield of 1,900 millions is entirely possible), it will more than make up for the deficiency in wheat; but it will not for some time have much effect upon earnings, and will not have its proper effect on public confidence in the prosperity of the country, for the reason that the importance of the corn crop is not generally appreciated.

Traveling in 1849.

An old railroad guide gives one a more realizing sense of the rapid progress of railroads in this country than almost anything else. We have before us "Disturnell's Railroad, Steamboat and Telegraph Book" of January, 1849, a volume of but 81 very small pages, to fill which, stage, express and telegraph routes and rates and lists of hotels were given as well as railroad lines, though it did not pretend to cover completely the South and West, in which at that time railroad routes were very, very few, however. The route to New Orleans described enabled the passenger from New York to go by rail as far as Wilmington, N. C., with the exception of the 54 miles from Washington to Acquia. But from Wilmington he took a steamboat to Charleston, S. C., and thence to New Orleans was forwarded by rail, stage and steamboat. Those who look upon sleeping cars as introduced since the war the may be surprised at the announcement in the guide that "the CARS on the railroads are of the most improved construction, those upon the GEORGIA RAILROADS being provided with STATE-ROOMS and BERTHS for night travel." The lines, distances and fares are given as follows:

	Miles.	Time.	Fare.
New York to Phila., rail	88	4½ h.	$4.00
Phila. to Baltimore "	97	6	4.00
Baltimore to Washington, rail	40		1.80
Washington to Acquia Creek, steamboat.	54	10½	2.00
Acquia Creek to Richmond, rail	76		3.5.
Richmond to Wilmington, rail	247	24	10.00
Wilmington to Charleston, steamboat.	175	16	5.00
Charleston to Augusta, Ga., rail	137	8	6.75
Augusta to Montgomery, Ala. (rail and stage)	374	45	26.50
Montgomery to Mobile, stage	200	40	10.00
Same by steamboat, water permitting.	400	48	8.00
Mobile to New Orleans, steamboat	175	20	5.00
Total	1,663	7d. 6h.	$78.55

The time is a little more than that now required to travel from New York to San Francisco. The fare through from Baltimore to New Orleans was usually "about $60," making it $68 from New York.

The Baltimore & Ohio Railroad was open from Baltimore to Cumberland, 178 miles, but the announcement of it reads: "Baltimore & Ohio Railroad (finished)." The traveler is informed that by taking this road and the stage from Cumberland to Brownsville, Pa., 74 miles, and thence a steamboat down the Monongahela, 40 miles, or the stages over the National road, from Cumberland to Wheeling, 130 miles, he can go from New York to Pittsburgh or Wheeling in two days, "and thence by commodious steamboats to Cincinnati, St. Louis, New Orleans," etc.

Five other different routes between New Orleans and New York are described, the time required being from 11 to 15 days, the distance from 2,275 to 2,540 miles, and the fare from $33 to $50. All of them include a passage up the Mississippi, and four of them the steamboat trip from New Orleans to Cincinnati, 1,424 miles, for which seven days were allowed, but the fare was only $12, which made the board pretty cheap, if it was included. One took the passenger by steamboat to St. Louis, up the Illinois and over the Illinois & Michigan Canal to to Chicago, across Lake Michigan to New Buffalo, to Kalamazoo by stage, and thence by the Michigan Central Railroad to Detroit (two days were allowed between New Buffalo and Detroit), by steamboat to Buffalo, and thence by rail to New York, the latter journey taking two days. Those who went *via* Pittsburgh gained time by going *via* Baltimore and Cumberland, 42 hours being required by that route between Philadelphia and Pittsburgh, while by the "Pennsylvania Canal route" it took 96 hours and cost the same ($14).

In 1849 you could already go to Albany by rail, but by a route which one would hardly dream of taking now, namely, by the New York & New Haven Railroad to Bridgeport (58½ miles), the Housatonic Railroad to the Massachusetts line (74 miles), the Berkshire & West Stockbridge Railroad to West Stockbridge, Mass. (24 miles), and the Albany & West Stockbridge Railroad to Albany (38 miles)—altogether 194½ miles. Apparently, however, the passengers generally went by steamboat to Bridgeport. By this route (steamboat and rail) the fare was only $4. It had to meet the powerful competition of the Hudson River steamboats—more powerful than now, for by the rail route then the usual time from New York to Albany was 11 hours. It was probably almost exclusively a winter route. The Harlem Railroad then reached as far as Croton Falls, 52 miles. The Hudson River Railroad was not. The Erie ended at Binghamton, the Morris & Essex at Dover, N. J., but the Long Island Railroad was open from Brooklyn to Greenpoint.

Apparently the New York & New Haven Railroad had not fairly got to working the n, though it advertised one express and one accommodation train between New York and New Haven. The rail line from New Haven to Boston as well as that from Bridgeport to Albany advertised a steamboat and no rail connection with New York. Four different railroads made up the line from New Haven *via* Springfield to Boston. The time for the 160 miles from New Haven was six hours—very respectable speed; the fare from New York was $5.

From Boston to Albany the rail route was complete as it now exists, but owned by three companies. The fare was only $5 for the 200 miles, and in second-class cars $3.75; the time, 11 hours. "Cars leave Boston * * for Albany and Troy daily, Sundays excepted, 7 and 8 a. m. and 4 p. m., *the latter train stopping over night at Springfield.*"

The United States Mail Route from Albany to Buffalo consisted of the following railroads:

	Miles.
Albany & Schenectady	17
Utica & Schenectady	78
Syracuse & Utica	53
Auburn & Syracuse	26
Auburn & Rochester	78
Tonawanda (Rochester to Attica)	43
Attica & Buffalo	31
Total	326

This is not all included in the New York Central now. The Attica & Buffalo and we believe the 11 miles of the Tonawanda between Attica and Batavia now form part of the Erie.

By this line between Albany and Buffalo the fare was $9.75 in 1849. There were three passenger trains each way daily, one of which made the 326 miles in 17½ hours, one in 18¼, and the other in 23 hours.

The only routes west from Buffalo noticed was the daily stage line from Niagara Falls to Detroit, across Canada, and another stage line to Toledo. It being winter, the steamboat lines are not given. The Detroit & Buffalo stage line was apparently very important. The account of it says:

"Passengers are informed that every exertion will be made by the proprietors to insure speed and comfort on the road.

"This is much the shortest, most direct and cheapest route for travelers passing east and west. The entire route has been graded, new bridges constructed, and about 150 miles planked and macadamized. As distance is now measured by time, two days and a half only are consumed between Detroit and Buffalo, and in eight days passengers can go the whole distance from Chicago to New York."

Let us think of that as we ride through between New York and Chicago in 27 hours without once leaving our car, and shoot across from Buffalo to Detroit in 7½ hours, and even then growl about the wearisome journey. Sixty hours' confinement in a stage coach in midwinter might lead us to think more of our mercies. By the way, what could those stages have been doing for 60 hours on a road about 230 miles long, "150 miles planked and macadamized?" The traveler is attracted by the information that he will cross the Suspension Bridge over the Niagara River, which makes a connecting link, as it were, between that time and this year of the opening of John A. Roebliug's other great suspension bridge.

The Michigan Central was then open from Detroit to Kalamazoo, whence stages ran to Chicago in winter, and in summer to New Buffalo, there connecting with steamboats to Chicago. It was not intended to build further than New Buffalo, railroads seeming superfluous where there was navigable water. Apparently the Michigan Central was too far off to be much known in New York, however; the trains and their times are not given, but a note of the editor says, "Particulars not known."

The only other railroads west of Buffalo which this guide mentions are those forming the line from Sandusky to Cincinnati, the "Mad River & Lake Erie," from Sandusky to Springfield (184 miles), and the Little Miami, from Springfield to Cincinnati (84 miles). "During the season of navigation cars leave Sandusky daily on the arrival of steamboats from Buffalo." What was done with the road when navigation was closed the guide-book saith not; but from Springfield to Cincinnati the "winter arrangement" provided for two trains each way daily, and the fare was but three cents a mile.

The great amount of space given to telegraph companies is noticeable. There were then (Jan. 1, 1849), "finished and in progress of construction" 8,816 miles of line in the United States and Canada, reaching as far southwest as New Orleans, and westward to Chicago and Milwaukee, Cincinnati and St. Louis. But there were many more companies than now. Seventeen of the 81 pages of the book are devoted to them, and besides there is a list of the offices of the different companies in each principal city. Telegraph tariffs are given. There was sharp competition on some routes, evidently. "House's Printing Telegraph" sent 10 words from New York to Philadelphia for 25 cents, to Baltimore and Washington for 50, to Cleveland or Columbus for 95, to Cincinnati or Detroit for $1.05, to Chicago for $1.55, to St. Louis for $1.50, to New Orleans for $2.

This little book of 81 pages, containing about 14 square inches each, certainly gives less than one-third of its space to railroads and apparently describes very nearly if not quite all in operation in the United States and Canada at the time. Now, 34 years later, the *Official Railway Guide* has 480 pages of 54 square inches each, absolutely crowded with fine-print railroad time tables, and not a word of hotels, telegraphs and expresses which take much of Disturnell's book in 1849, and very little of steamboats and stages, which require more room than the railroads in the old guide. The guide of 1883 is to that of 1849 as 1 is to 23 in size, in railroad mileage about in the same proportion, in number of trains, perhaps as 1 to 50. The population meanwhile has increased from 22 to 55 millions. There was a mile of railroad for every 3,700 people then; now there is a mile for every 476 people.

And this day of small things was—when? In the distant past, known only by tradition or history? No: in times fresh in the memory of men who do not yet call themselves old—far removed from us indeed, but not in time; seeming old as do the early stages of all arts.

Pennsylvania Earnings and Expenses for June and the Half-Year.

The report of the Pennsylvania Railroad for the month of June shows that in the gross earnings of all the lines east of Pittsburgh and Erie there was an increase of $63,115 (1¼ per cent.) over last year, in the working expenses an increase of $418,306 (16.4 per cent.), and consequently in the net earnings a *decrease* of $355,191 (23.2 per cent.). This is an exceptionally unfavorable report, not so much in gross earnings, though these were $146,000 less than in May, as because of the very large amount of the working expenses. These were larger than in any other month in the history of the road, and $283,000 more than in May. They were 71¼ per cent. of the earnings, while for the whole year 1882 the expenses were 62¼ per cent. and for 1881 only 60¼ per cent. of the earnings. It will not do to lay too much stress on the expenditures of a single month, but expenses have been high in previous months also. As there has been no increase in the elements of expenses—labor and materials—the natural inference would be that there has been a large increase of traffic carried at less than last year's rates; and yet it is hard to see where a large increase of traffic can have come from.

The increase in expenses was so great last June as to make the net earnings less than in any other month since February, 1882, and $357,000 (23 per cent.) less than the average monthly net earnings in 1882.

The earnings and expenses of these lines east of Pittsburgh and Erie in the month of June for eleven successive years have been:

Year.	Gross earnings.	Expenses.	Net earnings.
1873	$3,527,427	$2,845,562	$681,865
1874	3,198,989	2,150,146	1,048,843
1875	2,966,345	2,001,749	964,596
1876	2,940,192	1,959,180	981,012
1877	2,446,176	1,612,828	833,348
1878	2,380,200	1,475,867	904,333
1879	2,39 .809	1,789 815	600,994
1880	3,221,477	2,209,232	1,012,245
1881	3,807,438	2,318,902	1,488,536
1882	4,093,757	2,559,431	1,534,326
1883	4,156,872	2,977,737	1,179,135

The gross earnings were larger this year than in any previous June, and though but little more than last year, they were $350,000 (9 per cent.) more than in 1881, $935,000 (29 per cent.) more than in 1880, and no less than $1,766,000 (75 per cent.) more than in 1879. The increase in working expenses since 1879 has been no less than $1,188,000 (66⅔ per cent.); since 1880 it has been $768,500, and since 1881, $659,000. The net earnings are not only $355,000 less than last year, but $309,000 less than 1881, though the gross earnings are $350,000 greater this year, and they are but $167,000 more than in 1880, notwithstanding the increase of $935,000 in receipts.

The Pennsylvania lines *west* of Pittsburgh and Erie in the month of June had an excess of liabilities over net earnings of $168,360 this year, against a surplus of $103,778 last year, a decrease of $272,138. If we add this to the decrease in net earnings, we have a total decrease in June in the profits of the Pennsylvania Railroad Company from these two systems of roads amounting to $627,329, which is equal to about 0.7 per cent. on the capital stock of the company as recently increased—a pretty large decrease for a single month, and equal to a dividend of 8 per cent. per year.

For the half-year ending with June, the gross earnings and expenses of the system east of Pittsburgh and Erie this year and last compare as follows:

	1883.	1882.	Increase.	P. c.
Earnings	$24,352,586	$22,650,853	$1,701,7 3	7.5
Expenses	15,833,962	14,460,944	1,373,028	9.5
Net earnings	$8,518,624	$8,189,919	$328,705	4.0

There is a very considerable gain in gross earnings and a not unimportant one in net earnings for the six months, but the gain in the latter is not half as great as for the five months ending with May, and another decrease like that in June would wipe it out entirely.

For seven successive years the earnings and expenses for the half-year have been:

Year.	Gross earnings.	Expenses.	Net earnings.
1877	$14 336,396	$9,606,977	$4,729,419
1878	14,451,938	9,106,040	5,345,898
1879	15 414,058	9,568 203	5,845,655
1880	19,434,071	11,339 602	8,094,409
1881	21,553,839	12,556,685	8,997 154
1882	22.650,853	14,460,934	8,189,919
1883	24,352,586	15,833,962	8,518,624

The comparison with previous years is a little more favorable than for June. There is a gain of $2,799,000 (13 per cent.) in gross earnings over 1881, and of $4,918,000 (24 per cent.) over 1880, and one of $8,938,000 (58 per cent.) over 1879. In working expenses the increase over 1879 is $6,265,000 (66 per cent.), over 1880 it is $4,494,000 (40 per

cent.), and over 1881 $3,277,000 (26 per cent.) Still the net earnings this year are larger than in any other except 1881. The expenses were 58½ per cent. of the earnings that year, against 64½ per cent. this year.

For the half-year the company's lines *west* of Pittsburgh and Erie show a surplus over all liabilities of $182,931, being an increase of $147,468 over 1882. For five successive years the surplus or deficit netted by this western system in the first half of the year has been :

1879.	1880.	1881.	1882.	1883.
Deficit.	Surplus.	Surplus.	Surplus.	Surplus.
$419,337	$1,311,136	$1,573,303	$35,463	$182,931

As the gross earnings of this system are at the rate of about $30,000,000 a year, the surplus in the last year is but a trifle—not 1¼ per cent. of the total earnings and perhaps 3½ per cent. of the net earnings. Last year the expenses and interest and other liabilities of these lines absorbed 94 per cent. of their earnings. Still they yielded a net profit of $1,863,800, all but $34,500 of which was made in the last half of the year. Last year, too, the net earnings of the system east of Pittsburgh and Erie were $1,400,000 more in the last half than in the first half of the year. We should not expect so great a difference this year, unless it is made by reducing expenses. The gross earnings last year were $26,429,000 in the last half of the year, against $22,650,000 in the first half. But last year the first half was very bad for trunk-line traffic and the second half very good, and there is not this year any manifest reason for a great improvement in the last half of the year, though it is ordinarily the best half.

Crop Prospects.

The Ohio Department of Agriculture reports that the wheat crop of that state (now harvested) was about 23,873,000 bushels, against 45,040,000 last year, a decrease of 47 per cent. The average yield per acre it gives as 8.7 per bushel, which will hardly pay expenses. It reports the condition of corn as 92, of oats as 108, and of timothy hay as 106—all better than last year, and oats and hay unusually good.

A committee of the San Francisco Produce Exchange estimates the wheat crop of California this year to be 53,071,000 bushels, against 34,547,000 last year.

An intelligent and disinterested correspondent in Jamestown, Dakota, writes us that the wheat there suffered greatly from drought in June, when for four weeks it did not rain. Since June there has been plenty of rain, but no one estimates the average yield in that valley to be more than 10 bushels per acre.

Reports from the Red River Valley indicate damage from drought everywhere, but apparently more at some distance north of the Northern Pacific than further south. Early sown wheat seems generally to promise extremely well, but most of the land was sown late. Estimates for the Red River Valley telegraphed to the Chicago *Tribune* from Fargo, July 26, are for an average of 15 bushels to the acre for Cass County (on the Northern Pacific); in Traill County it is said that "the average will be lower." In Grand Forks, Walsh and Pembina counties, which are the counties further north on the Dakota side, the report says the crop "has suffered considerably from dry weather and the careless sowing of grain upon land not properly prepared." In Richland County, south of Cass, the crop promises as well as in Cass (15 bushels per acre, which is about one-fourth less than the average claimed for these counties); in Ransom, west of Richland, the crop is poor in the western half, and also in the western half of Barnes County, next west of Cass. By far the larger part of the wheat of North Dakota is grown in these counties and the James River Valley.

There is likely to be some misconception of the actual condition of the crop in North Dakota, because for several weeks reports agree that there has been "great improvement." This is true; but the condition at the close of the June drought was such that great improvement still leaves the late sown wheat in a condition below the average of that section.

Reports are uniformly favorable for the wheat and other crops in South Dakota—that is, on all the railroads south of the Northern Pacific.

The Minneapolis *Tribune* estimates that the wheat crop of Minnesota will not fall below that of last year, which was 32,270,000 bushels—not large.

The condition of the corn crop in the great corn states improved very much during July, when the weather was generally very favorable. But the condition was very low July 1. Reports indicate that in many parts of Iowa and apparently most of Central and Southern Illinois, a full average crop is promised; but in many places, while there has been great improvement, the crop is still not in good condition. In Nebraska corn is seriously threatened by drought. Immediate rains may still bring most of it forward, but a very few days more of dry weather must cause great loss. In Texas, where corn is now fully grown, though not ripe, corn has suffered considerably from drought, but this will not have much effect on the general supply, and Texas probably has about enough for its own needs. Much depends on frost in the North, as the plant is late. If it keeps off till October, Illinois and Iowa are likely to produce vastly more than in 1881 or 1882, and the total yield of the country may be larger than ever before, which it should be, as the average is very much greater—about 10 per cent. greater than when we had the largest production, which was 1,755 millions bushels, in 1879. A great deal depends upon the corn crop this year, as, with the very best luck for wheat hereafter, the yield must be much below an average, and in most of the great winter wheat states, where it is now harvested, it has been a very unprofitable crop. Oats, which are next in importance to wheat and corn (acreage about one-half that of wheat and one-fourth that of corn), have almost everywhere turned out excellently. They have yet to be harvested north of the latitude of Indianapolis, and there may be some loss yet from bad harvest weather. Grass and hay, more important than oats, are extraordinarily good. The one bad crop so far is winter wheat. The damage to North Dakota wheat, whatever it may be, can have but little effect except on the railroads of North Dakota and those which carry the wheat to Minneapolis and Chicago, because the total production of North Dakota at best is too small to affect the country at large. Doubtless it will produce a larger *amount* than ever before, but the acreage is enormously larger, and a crop no larger than last year's would be a serious misfortune to that part of the country. The reports do not indicate that the average yield will be a very small one there, but much less than is counted on in that part of the country, where an average production is claimed at least 50 per cent. greater than the average of the rest of the country.

The light yield of wheat is made a greater misfortune to this country, and especially to the farmers, by the low prices, the result of the large surplus left from last year's harvest, and the production this year out of the United States. Year before last, when the crop was so small, the price was $1.25 to $1.40 in Chicago, while now it is about $1.02.

The cotton crop promises to be an extraordinary one in Texas, though it needs rain now—or did a few days ago. Picking has begun in many places in that state. Elsewhere cotton seems generally to be in good condition, but it is not so far advanced as in Texas and has more risks yet to run. Caterpillars, which sometimes cause great destruction, have appeared in Alabama and Georgia, but so far not enough to injure the crop. News from cotton for a few weeks will be very important.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Chicago, Milwaukee & St. Paul.—The *James River Branch* is extended from New Ashton, Dak., south to Huron, 9 miles.

Chicago & Northwestern.—Track is laid on the *Aurora Branch* from Batavia, Ill., south to Aurora, 7 miles.

Eastern Junction, Broad Sound Pier & Point Shirley.—Extended from Ocean Pier, Mass., southeast to Point Shirley, 2 miles.

Grand Trunk.—The *Michigan Air Line Branch* is extended from Pontiac, Mich., west by south to South Lyons, 24 miles.

Little Rock & Fort Smith.—A branch is completed from Russellville, Ark., south to Dardanelle, 5 miles.

New Orleans & Northeastern.—Track laid to a point seventeen miles southwest from Hattiesburg, Miss., an extension of 45 miles. Gauge, 5 ft.

Pennsylvania.—The *Phœnixville & West Chester Branch* is completed from Frazer, Pa., northwest to Phœnixville, 11 miles.

This is a total of 103 miles of new railroad, making 2,761 miles thus far this year, against 5,478 miles reported at the corresponding time in 1882, 2,924 miles in 1881, 2,525 miles in 1880, 1,187 miles in 1879, 941 miles in 1878, 830 miles in 1877, 1,046 miles in 1876, 594 miles in 1875, 913 miles in 1874, 1,966 miles in 1873, and 3,372 miles in 1872.

THE PRODUCTION OF PIG IRON, according to the trustworthy statistics of Mr. James M. Swank, Secretary of the Iron and Steel Association, published in the last number of its *Bulletin*, was very large in the first half of this year—a little more than half as great as for the whole of 1882. But the rate of production has been greatly reduced since the beginning of the year. The number of furnaces in blast was 417 January 1 and only 334 July 1—a decrease of just about one-fifth. Of course, it is the furnaces which produce least economically, which for the most part are the smaller furnaces, that have gone out of blast, but there are so many of them that an important decrease in production may be expected in the last half of the year, if there is no change in the number of furnaces in blast.

Still the production of the entire year seems likely to be greater than in any other except 1882. In the first half 2,352,019 tons were produced by furnaces numbering from 417 down to 334—an average, we will say, of 375. The number in blast July 1 was but 11 per cent. less than this average. If these continue during the rest of the year, even if those which have blown out are of equal capacity with those still in blast, they may be expected to produce 258,720 tons less than in the first half of the year, making the total production of the year 4,445,318 tons. Now the production for the five years previous has been:

1878.	1879.	1880	1881.	1882.
2,361,215	2,741,853	3,835,191	4,144,354	4,623,323

This would make this year's production only 178,005 tons (3¾ per cent.) less than last year's, and 301,064 tons (6.8 per cent.) *more* than that of 1881, which was larger than in any previous year.

The stock of pig iron unsold in makers' hands increased 144,935 tons from Jan. 1 to July, and the imports were 104,041 less than last year. This indicates a decrease in consumption, it is true, but still a much more moderate one than current reports had indicated. In fact the consumption of pig iron in the first half of the year must have been enormous.

Mr. Swank's statistics of the pig-iron production of the different districts show some remarkable facts. In Allegheny County, Pa., more than 60 per cent. more was produced in the first half of this year than half its production last year—260,299 tons, against 160,197. In Virginia the production is 47,930 this year, against 27,499 last. The only states showing a large decrease are Illinois (108,832, against 160,893 tons), and Michigan (72,518, against 93,837). The Southern states altogether show an increase in iron smelted with bituminous coal or coke from 164,404 tons last year to 203,245 this—23½ per cent., but a decrease from 81,679 to 66,829 (18 per cent.) in charcoal pig. In every case the comparison is of the actual production of the first half of this year with one-half of the production of the whole of last year, no statistics having been collected for the first half of last year.

In times like these, when there has been a large falling off in the price of iron, we should expect that the districts which maintain or increase their production to be those which can produce at least cost. Pennsylvania shows an increase of 25 per cent. in bituminous coal and coke iron, of 2 per cent. in anthracite and a decrease of 27 per cent. in charcoal pig. New York and New Jersey and Maryland show a decrease. The South, as we have seen, has a large increase in bituminous coal and coke iron. The states west of Ohio and east of Colorado decrease from 351,889 to 256,476, or 26 per cent. Ohio, which stands between the East and the West, as it were, made 319,238 tons this year and 312,009 last. The reader can draw his own conclusions, but he will do well not to regard these changes as conclusive evidence of the capacity of the several states for the economical production of pig iron.

CHICAGO THROUGH RAIL SHIPMENTS EASTWARD, for the week ending July 21, by the six roads in the pool, have been for the last four years :

	1880.	1881.	1882.	1883.
Tons.....	33,573	54,211	22,788	27,603

Thus the shipments of the week this year, though 4,815 tons (21 per cent.) more than last year, were nearly 50 per cent. less than in 1881 (during the railroad war) and 17 per cent. less than in 1880, when the rate was a fifth higher than now.

Of the shipments of the week this year 12.8 per cent. went by the Chicago & Grand Trunk, 17.7 by the Michigan Central, 20 by the Lake Shore, 24 by the Fort Wayne, 15.9 by the Chicago, St. Louis & Pittsburgh, and 9.6 per cent. by the Baltimore & Ohio. Thus the two Vanderbilt roads together carried 37.7 per cent. of the whole and the two Pennsylvania roads 39.9, against their 45.5 and 35.5 in the pool.

Besides the shipments by the pool roads there were shipments (through and local) of 1,445 tons by the Nickel-Plate, and 2,987 tons by the Chicago & Atlantic, making the total through shipments probably about 32,000 tons.

For seven successive weeks the Chicago shipments have been, in tons :

—Week ending.—						
June 7.	June 14.	June 21.	June 30.	July 7.	July 14.	July 21.
26,093	29,399	27,449	30,718	23,584	27,456	27,603

The shipments for the last week were just about equal to the average of the seven weeks. There is not yet visible any effect of the winter wheat harvest, but this is never felt so soon at Chicago as further south, and it will be felt, if at all, much more in the total grain shipments of the Northwestern markets than in the Chicago rail shipments.

For the week ending July 28, the incomplete report of the eastward shipments, through and local, of the eight roads from Chicago to the East, gives the total as 26,542 tons, against 19,309 tons in the corresponding week of last year and 24,606 in the previous week of this year. Of the total last week, 1,685 tons (6.4 per cent.) went by the Nickel-Plate and 3,327 (12.5 per cent.) by the Chicago & Atlantic. The amount of provisions carried was unusually large—larger than in 1881 even; but the flour shipments were nearly a quarter less than last year, and little more than a sixth of what they were in 1881. For the first time for several months the two Vanderbilt roads are reported as carrying more than the two Pennsylvania roads. Together they carried nearly 40 per cent. of the whole carried by the pool roads, the Pennsylvania roads 37 per cent. The complete report will alter these figures somewhat, however.

UNITED STATES COAL PRODUCTION is reported by Mr. Albert Williams, Jr., of the United States Geological Survey, to have been 87,083,134 tons of 2,240 lbs. in 1882, exclusive of the local and colliery consumption, which is estimated at 6 per cent. more. In the first half of this year Mr. Williams estimates the production to have been 44,010,767 tons, or a trifle more than half of the unexampled production of last year. By the Census the coal production of 1880 was 63,773,603 tons, so that from 1880 to 1882 we have the almost incredible increase of 23,310,000 tons, or 36½ per cent. Of this increase no less than 19,769,624 tons, or 52 per cent., was bituminous coal, lignite, etc., and only 3,539,907 tons (14 per cent.) anthracite.

By the Census 70,748 men and boys were employed in mining anthracite and 100,116 in mining bituminous coal. If the number increased in proportion to the production, 71,000 more persons were required in this industry in 1882 and in the first half of this year.

This is an illustration of the fact we have so frequently insisted upon, that since 1878 or 1879, other industries have grown much more rapidly than farming. The acreage under cultivation in 1882 was a little more than 4 per cent. greater than in 1880, and the number of persons engaged in agriculture probably did not increase any more, and very likely less, than the acreage cultivated.

LAKE RATES have advanced further since last week, and quotations this week are as high as 3 cents a bushel for corn and 3¼ for wheat from Chicago to Buffalo, though shipments cannot be called large.

Canal rates, on the other hand, have fallen a little, to 2½ cents a bushel for oats, 3¼ for corn, and 3⅝ for wheat from Buffalo to New York. These are the lowest canal rates ever made. The lowest heretofore were 3¼ for corn and 3⅝ for wheat for about two weeks in 1879; in 1880 rates were high; in 1881 and 1882 rates averaged lower than in 1879, for a long time being 3½ and 4 cents, and most of the season going not much above these rates. Ocean rates have fallen a little, but have still been higher than for months before last week, Wednesday's quotations being 4d. to 4¼d. for grain by steam from New York to Liverpool.

At present the lake rate from Chicago to Buffalo is about the same as the canal rate from Buffalo to New York. Heretofore the lowest canal rate has usually been twice as great as the lowest lake rate, and the average more than 50 per cent. greater. The abolition of tolls makes a difference of a cent a bushel in favor the canal, but the canal rate would still be low if it was a cent higher, and the boatmen cannot be doing very well. July is the time when both lake and canal rates are likely to be lowest. Later, if there has been a good harvest and shipments become larger, they usually advance somewhat. Last year, however, in spite of a heavy wheat movement, such as we shall not have this year, and rail rates well maintained at the figures ruling this year, the canal rates remained extremely low till the end of the season.

NEW PUBLICATIONS.

The Strains in Framed Structures, with numerous practical applications to cranes, bridge, roof and suspension trusses, braced arches, pivot and draw spans, continuous girders, etc., also determination of dimensions and designing of details, specifications and contracts, complete designs and working drawings. By A. J. DuBois, C. E., Ph. D., Higgin Professor of Dynamic Engineering in the Sheffield Scientific School of Yale College. New York: John Wiley & Sons, 1883.

In this handsome quarto volume of 390 pages Professor DuBois has presented a great amount of information relating to the science and art of bridge construction. Not only the extensive literature of strains and stresses has been freely consulted and used in its preparation, but also the practice of bridge and railroad companies, as exhibited in their albums and specifications, has been laid under contribution to furnish many important facts not usually given in text books. There is also presented the complete strain sheet, bills of material and working drawings for a railroad bridge of 153 ft. span, built by the Kellogg & Maurice Bridge Company. The book is primarily intended for the use of students in technical schools, but it seems also likely to prove valuable to the engineering profession in general. Textbooks on strains have heretofore been prepared almost entirely from a theoretical stand-point, the writers usually confining themselves to the mathematical development of the subject and to the presentation of the methods of computation. The work of Mr. Boller on Highway Bridges, however, departed from this rule, and introduced considerations relating to practical design and construction. Professor DuBois' plan is similar to that of Mr. Boller, but the theory receives naturally the more extended treatment, and his range of discussion is far wider and more comprehensive. In Part I., containing 260 pages, the theory and the methods of computation are presented, and in Part II., of 130 pages, the practical applications are given. A good deal of space is devoted to braced arches, continuous girders and suspension trusses, more probably than the needs of technical students require; yet, as the author remarks, it can be no disadvantage to them to possess a text book containing more than they are able to read in the college course.

The problem of the proper combination of theory and practice in education has, of course, not yet approached a solution, but probably all will agree that a knowledge of one is a help to the other. In bridge construction, as it actually exists in the mind of an expert, there is no discordance or even separation between theory and practice, since for every practical point he has a reason and for every theoretical point he sees many applications. This is not the case with a beginner, and it certainly seems as if the study of roofs and bridges could be greatly facilitated by looking at the subject from both stand-points. If there is any criticism to make upon Professor DuBois' treament, it is that the two might have been more closely correlated with advantage. Of minor points a word or two may be said. The frequent use of the words "flange" and "bay" instead of the American terms "chord" and "panel" will seem awkward to many readers, as also the use of tons instead of pounds. On the other hand the author is to be commended for employing the word strain, which is now too well established to be replaced by "stress," as some writers desire. There are four methods given for the analysis of strains, two graphic and two algebraic. In the practical part are many drawings of bridge details and a list, furnished by Professor Waddell, of all the parts comprised in several kinds of highway and railroad bridges.

United States Mineral Production.

Mr. Albert Williams, Jr., Chief of the Division of Mining Statistics and Technology, United States Geological Survey, has prepared a report on "the Mineral Resources of the United States," which contains some very important statistics not hitherto collected, except for the census years. By far the most important of these are of coal other than anthracite, concerning which our information has been very imperfect heretofore. The value of the statistics is greatly increased because of their freshness, for they are made to include the first half of 1883, though from the round figures used we suspect that these figures are largely estimates.

We give below the quantities and values as shown by this report for the whole year 1882 and the first half of 1883:

	1882.		First half 1883.	
	Tons.	Value.	Tons.	Value.
Coal, Pa. anthracite	29,120,096	$65,520,216	14,010,767	$31,524,226
Coal, other	57,963,038	72,453,797	30,000,000	37,500,000
Total coal	87,083,134	$137,974,013	44,010,767	$69,024,226
Iron ore mined	9,000,000	32,400,000		
Domestic ore consumed	8,700,000	31,320,000	4,500,000	12,375,000
Imported ore consumed	589,655		185,000	
Total ore consumed	9,289,655		4,685,000	
Pig iron made	4,623,323	106,336,429	2,352,019	47,040,380
Consumed in iron and steel works.				
Anthracite coal	3,800,000		1,810,000	
Bituminous "	6,600,000		3,140,000	
Coke	3,350 000		1 780,000	
Charcoal (bu)	107,000,000		38.750.000	
Limestone (tons)	3,800,000	$2,310,000	1,950,000	$1,072,500
Value at works of all iron and steel made in first stage of manufacture excluding all duplications		$171,336,429		$71,000,000
Petroleum produced, bbls.	30,053,500	23,704,698	11,291.663	11,305,778
Copper produced, lbs.	91,646,232	16,038,091	58,000,000	8,500,000
Lead produced, lbs.	265.780,000	12,624,550	140.000,000	6,700,000
Zinc " "	67 530,000	3,646,620	36,000.000	1,665.000
Quicksilver " "	4,0-3,998	1,487,537	1,739,710	613,213
Nickel " "	281,616	309,777	works closed.	
Salt " bbls.	6,412,373	4.320,140	3,206,186	2,160,070

The following groupings are presented with a realization of the incongruity of many of the items:

Values of the metallic products of the United States in 1882.

Pig iron, spot value	$106,236,429
Silver, coining value	46,800,000
Gold, coining value	32,500,000
Copper, value at New York City	16,038,091
Lead, value at New York City	12,624,550
Zinc, value at New York City	3,646,620
Quicksilver, value at San Francisco	1,487,537
Nickel, value at Philadelphia	309,777
Antimony, value at San Francisco	12,000
Platinum, value at New York City	1,000
Total	$219,756,004

Values of some of the non-metallic products of the United States in 1882 (all spot values, except chrome iron ores).

Bituminous coal, brown coal, lignite, and anthracite mined outside of Pennsylvania	$76,076,487
Pennsylvania anthracite	70,556,094
Crude petroleum	23,704,698
Lime	21,700,000
Building-stone	21,000,000
Salt	4,320,140
Cement	3,672,750
Limestone for iron flux	2,310,000
Phosphate rock	1,147,850
New Jersey marls	540,000
Crude borax	338,333
Mica	250,000
Crude barytes	160,000
Chrome iron ore, value at Baltimore	100,000
Soapstone	90,000
Manganese ore	52,500
Asbestos	36,000
Graphite	34,000
Sulphur	21,000
Cobalt ore and matte	15,000
Precious stones, uncut	12,500
Asphaltum	10,500
Corundum	6,250
Pumice-stone	1,750
Total	$226,156,402

By the census of 1880 the value of the "metallic products" was about 28 millions less than is given above, and of the "non-metallic products" 55 millions less.

THE SCRAP HEAP.

Locomotive Building.

The Pennsylvania Railroad shops at Altoona, Pa., are completing five new locomotives of class K, with anthracite burning fire-boxes, and have begun to build 10 new engines of the new class P, for passenger service on the main line.

The Manchester Locomotive Works in Manchester, N. H., have just completed a new locomotive for the Mt. Washington Railroad. It is of the same pattern as those now in use on the road.

The Pittsburgh Locomotive Works have lately taken a contract to build 45 locomotives.

The works of the Tanner & Delaney Engine Co. on the line of the Chesapeake & Ohio road, just outside Richmond, Va., are now completed. The company has about 25 acres of land, the buildings on which are an erecting shop, 300 by 43 ft.; storeroom, 57 by 51; office, 76 by 43, with a tower 60 ft. high; boiler shop, 196 by 66; machine shop, 196 by 66; blacksmith shop, 66 by 140; brass foundry, 41 by 56; iron foundry; 150 by 200; pattern shop, 69 by 56; carpenter shop, 158 by 66, besides several smaller buildings. An abundant water supply is provided for. The company will build locomotives, stationary engines, boilers and general machinery.

The Walker smoke-burning locomotive is now being tested on the Illinois Central road.

The Paterson (N. J.) *Press* says: "The total number of locomotives turned out and shipped from the different shops during the month of July was 36. Two of the engines were old ones sent to the shops for repairs. This is a considerable falling off from the number turned out in June, which was 53. Of the 36 turned out this month, 18 were from the Rogers Works, as follows: One for the Missouri Pacific; one for the Boston, Hoosac Tunnel & Western; seven (new) for the New York, West Shore & Buffalo road, and two repaired; one for the Hartford & Connecticut Western; four for the Richmond & Danville Extension Co., and two for the Louisville & Nashville road. The Grant Works turned out seven for the Pennsylvania Railroad. The Cooke Works turned out 11, as follows: 10 for the Chesapeake & Ohio, and one for the Cape Fear & Yadkin Valley road."

The Baldwin Locomotive Works in Philadelphia are building 25 engines for the Philadelphia & Reading road.

Car Notes.

The Barney & Smith Manufacturing Co. in Dayton, O., is building a number of new cars for various roads.

The Baltimore & Ohio Co. is building a new passenger car erecting shop at Mount Clare, Baltimore, in place of the shop burned some months ago.

The French Spiral Steel Spring Co. is building new shops in Pittsburgh. The main building is 300 by 75 ft., and there is an office and store room 60 by 18 ft., of brick.

The Philadelphia & Reading shops in Reading, Pa., are building some new coal cars for the road. New machinery for making coupling hooks for coal cars has lately been put in the shops.

The Ensign Manufacturing Co. in Huntington, W. Va., has taken a contract to build 300 box cars for the Louisville, New Orleans & Texas road.

Iron Notes.

At the annual meeting of the North Chicago Rolling Mill Co. in Chicago, last week, there were 44,120 shares represented, out of a total of 50,000 shares. It was reported that the volume of business done during the fiscal year ending June 30, 1883, was nearly that of the previous year, being in the aggregate 545,000 tons of iron and steel. The gross earnings were much less than they were during the previous year, while the outlook for the coming year was very uncertain and unsatisfactory. The following directors were elected: Nathaniel Thayer, Stephen Clement, and Orrin W. Potter. The directors then met and elected the following officers: President, O. W. Potter, Chicago; Vice-President, N. Thayer, Boston; Treasurer, S. Clement, Milwaukee; Secretary, R. C. Hannah Chicago. The following officers were appointed: General Manager, John C. Parkes, Chicago; Assistant to the Treasurer, Francis Hinton, Milwaukee.

The Cleveland Rolling Mill Co. in Cleveland, O., is making 10,000 tons of steel rails for the Indianapolis & St. Louis road.

Lemont Furnace in Fayette County, Pa., has shut down for repairs.

The Trumbull Iron Co. at Girard, Pa., is putting new boilers and an additional engine in its mill.

The Ward Iron Co in Niles, O., has made an assignment, with liabilities of about $300,000. It said that the available assets do not exceed $5,000. The company was owned by Mrs. Eliza Ward and managed by her son, James Ward. The company has been running rolling mills at Niles and New Philadelphia.

The Tyrone Iron Co. proposes to build a blast furnace and rolling mill in Tyrone, Pa.

Struthers Furnace, near Youngstown, O., which has been leased to the Brier Hill Coal & Iron Co., has gone out of blast, the lease having expired.

Oliphant Furnace in Fayette County, Pa., is in blast, and is making 25 tons of iron a day.

Manufacturing Notes.

The office of W. R. Ellis, Agent for the Patent Shaft & Axle Tree Co. (limited), of Wednesbury, England, has been removed from No. 72 Wall street to No. 18 Broadway, New York. The company manufactures wrought iron car and engine wheels with steel tires, iron and steel axles, tires and similar work.

The Ohio Power & Light Co., of Dayton, O., has transferred to H. H. Fulton, of Indianapolis, George N. Wheeler, of Denver, and their associates, the right to manufacture and sell the Wooley electric headlight in Wisconsin, Indiana, Illinois, Kentucky and all territory west of those states.

The Rail Market.

Steel Rails.—The market is reported firmer, owing to the demand for immediate delivery. Sales of small lots for summer delivery are reported at $38.50 to $39 per ton at mill, but $38 is still quoted for large orders, and $37.50 for later deliveries.

Rail Fastenings.—Spikes are still quoted at $2.60 per 100 lbs. in Pittsburgh, but the market is weaker and large orders could be placed for less. Track-bolts are quoted at $3 to $3.25 per 100 lbs., and splice-bars at 1.90 to 2 cents per pound.

Old Rails.—Old iron rails of good quality are scarce. A sale of American ties is reported at $22.50 per ton at tide-water, but $21.50 to $22 is the general quotation.

Estimating Value of Stock Killed on Mexican Railroads.

The new Texas-Mexican Railroad, which the Mexican National Construction Co. is building, passes through a grazing country in Mexico, as well as Texas. Cattle sometimes stray upon the track and get killed, and the section foremen, as here, are instructed to report such cases, the circumstances and the value of the animals killed. Recently the Assistant Superintendent, Mr. C. A. Merriman, in a letter to one of the section foremen that his "valuation" of cattle killed agreed too closely with the owner's; in response to which he received the following letter:

"REALITO STATION, July 27, 1883.

Col. Merriman, Esq., Asst. Superintendent and C., Tex. Mex. R. R.:

DEAR SIR: Your letter from the 16th inst. remarks: 'It looks as though you *consult* the owners of stock before you forward your report.' Another letter dated June 27, says: 'In all cases, where practicable, please inform owner or some one connected with pasture, etc. When possible, it would be a good idea to get such information before the animal is skinned.' Among all information is sure to be the owner's price. Now to 'Hereafter use *your own judgment*. Experience are as follows: I was working on railroad in Henderson County, Ky.; five or six animals were killed by accident; I made my reports to obey orders; parties got angry about value and disputed my prices. A fine mule was killed soon after; owner's price, $100; my judgment, $60. Result: a full dose of—not spring poetry but—buck shot from some unseen party while working on section. I had to leave on account of sound judgment about the price of a mule.

"Here, in this part of the country, where so many suspicious creatures roam, and with a few dollars can be hired to make people think that $15 are $30, it is still more dangerous to oppose their thought. There is Mr. ———, for instance. He sends notice in full Spanish to the section house that he will charge the company *in the future* $50 for every animal injured and killed! He just as well go at once to Chicago and deal in *futures*!

"A foreman on the road will be always in *agua caliente* (hot water) on account of stock. On some roads where there is not a stock agent the Road-Master enjoys those extra and makes himself popular with the stock owners about value of animals, after notice from office where foreman has to report first.

"It is a very fine thing for to appoint a headman to dictate prices to a rich stock-raiser, and go afterward before court and swear wrong, because he do not know anything about the cattle market. If I state age, condition, brand, breed, etc., anybody who reads daily papers in town knows market prices. I never bought any cattle in my life. If you take 40 per cent. off from owner's value you will always have my price.

"I am very respectfully yours,

"———

"Foreman Section———."

Lake Steamers for the Canadian Pacific.

The new Clyde built steel steamers of the Canadian Pacific Co., designed for service on Lake Superior and the Western portion of Lake Huron, are 270 ft. long, 38 ft. beam, 23 ft. deep, and have a carrying capacity of about 2,000 tons. They will ply between Algoma, on Lake Huron, and Fort William, at the head of Thunder Bay, near the western extremity of Lake Superior, at which two points the great railway undertaking of the company touches the lake system. The total distance from Winnipeg to Montreal by the lake route is 1,315 miles, as compared with about 1,746 miles by the railway route through Chicago. In order to pass the steamers through the canals, they have been so designed that after steaming out to Montreal they could with comparative ease each be cut in two, and for that purpose the hulls have been constructed with seven water-tight bulkheads, the centre one of which will serve only a temporary use. After the two portions have been floated up to Lake Ontario, they will again be put together and receive their final fittings and furnishings. Westward the steamers will carry passengers and general cargo, and, in order to fit them for such service, accommodation will be provided for some 500 or 600 emigrants on the main deck, and staterooms will be fitted up for some 240 first-class passengers. Coming down the lakes they will bring wheat and flour, there being four water-tight holds capable collectively of taking in about 2,000 tons of wheat in bulk.

A Hard-Worked Switchman.

A few days ago mention was made of the fact that a freight train moving east, on the Central, ran off on the Clinton road on account of a switch which had been left open. The facts remain as stated, but it is due the switchman to state further that the signal was lowered and the fault was with the engineer of the train, who disregarded the signal. No damage was done, and for this particular occasion it makes but little difference. In view of a future possible accident at that point, however, the occurrence is of importance, as it shows a state of things which would hardly warrant a coroner's jury in bringing in the usual verdict, "and we find that no blame attached to the company or any of its employés." The man who opened the switch in this instance should have closed it and would have done so as soon as he could have got around to it. First, his duty was to go to one end of the depot and lower a signal, then run to the other end and lower another and then open the switch. But instead of remaining to close it, he has to run ahead and open other switches ahead of the train, until it is switched out on the right track, and then come back, closing the switches as he comes. This one man is required to attend four signals, two at each end of the depot, take down in a book the number of each engine that passes the depot and the time it passes, report the same to the operator, display the time of the passing of trains on the boards provided for that purpose, and attend a number of switches. If the work could be distributed, this man could do all that is required of him by being very busy; but it often happens that two or three of these duties demanded his attention at the same moment, and it has been sheer luck that a serious accident has not been caused by his inability to do three things at once and perform the labor that should require the attention of at least two men.—*Utica (N. Y.) Herald.*

Riding on the Trucks.

As a passenger train on the Richmond, Fredericksburg & Potomac road ran into Fredericksburg, Va., one evening last week, the depot policeman discovered a colored boy, nearly grown, secreted on the trucks of one of the coaches stealing a ride to Quantico. He was hauled out from his perilous position, and a stranger purchased and gave him a ticket to his destination. He was completely covered with dust and could hardly see. The rod on which his weight rested was borne down nearly to the ground, and the wonder is that he was not thrown to the ground and torn to pieces by the train before he reached this point. He gave no name, but said he boarded the train at Richmond, and it was nothing for him to ride on the train in this manner from Richmond to Quantico and back.

Second-class Passengers in Smoking Cars.

Upon the legislative resolve concerning the transportation of women and children, traveling as second-class passengers, in smoking cars, the Massachusetts Railroad Commissioners report that they cannot recommend a law prohibiting it, but do recommend that the directors of the roads give orders that none be carried so against their will, unless their condition is such that it would be wrong to first-class passengers to give them seats in the other cars. The Commissioners say that, after a protracted examination of railroad officials, they find that in emigrant cars smoking is very general, and is shared by many of the women as well as the men, and that no complaint is made of the practice. As a rule, those who object to smoking are given seats in other cars, and it is to be regretted that any woman or child should ever be obliged to ride in a smoking car without consent. But the only way to obtain assurance of this would be (1) to place them in the ordinary cars, or (2) to attach to every train on which immigrant or second-class passengers may ever by any possibility ride, an extra car for their sole use. If the first course is pursued, and if every such passenger in whatever condition is to be placed, upon request, in ordinary cars, complaints will be made by the passengers in such cars—complaints more frequent and loud than any that have been heard as to the existing practice. If a car must be provided on all trains for every party of immigrants or second-class passengers, however small, it will involve considerable expense and some delay. The companies that are carrying this class of passengers at very low rates feel that it is unjust to place this burden upon them for the accommodation of so few and in answer to a demand so slight.

A Texas Traveler.

A dispatch from Denison, Tex., July 23, says that on the previous evening a man boarded the caboose of a Missouri, Kansas & Texas freight train at Red River station. When asked for his fare, he drew a revolver and opened fire, killing a brakeman instantly and wounding a fellow passenger fatally. Before he could be disarmed or secured he jumped from the train and escaped into the brush. The murderer was unknown to any one on the train. Each of his victims leaves a wife and young children.

Difference between Running an Engine Night and Day.

"Oh! yes, engineers do lose their nerve," said Old Throttle, "especially one who has a night run all the time. You see, in the night time an engineer's eyes, thoughts and all are confined to a very small space, it's nearly or quite dark inside the cab, and if his engine is workin' all right, carryin' her water, good lots of steam, and the fireman wide awake and lively, that engineer don't have much to do with his eyes, only look out ahead over the little space made bright by the head-light, and his thoughts are naturally confined to what his eyes take in. In the daytime it's different, he can look around and see lots that's goin' on. He notices that this field of 'taters looks good and wonders if his little patch at home will turn out as well: he sees a feller fishin', and remembers the last mess of trout he caught in the Shohola; he sees a woman and a baby in the little white house near the big curve, and his thoughts fly back to his home and the wife and children, and he wonders what they are doin' just now. All this he can take in, and be tendin' to business strictly, but in the night-time all is changed, and his vision and thoughts, as I said, are confined to the small spot made visible and distinct by the head-light, and his ideas naturally follow the rails. He remembers that the culvert just ahead is the very spot that was washed out last spring, and nothing left under the ties and rails for ten or fifteen feet; true, his engine jumped the chasm and only five cars loaded with express matter and baggage went down and were smashed and piled on top of each other, but it might have been the ten cars of emigrants that were coupled in the rear, and it isn't pleasant to think of what might have been. Just around the curve is the place where his engine struck a draw-head some careless brakeman had left laying on the track, his engine only turned over on her side, and fortunately the air-brakes had so stopped the train that no further damage was done, but he shudders as he recalls the sensations he experienced while the engine was turning over and crushing its mad way through the ties, and 'tisn't pleasant to think of. He flies over a huge embankment at a pace of 40 miles an hour, and thinks of the feelings that were his on a certain trip last winter when a side-rod came crashing through the side of the cab, while passing over this same embankment. In the cut just ahead is where, on the last trip, a watchman intent on watching a train on the opposite track, had forgotten the express was due, and the horror and agony depicted on his face as the pilot threw him high in the air, will never be forgotten, neither will his mangled and stained body picked up and cared for as soon as the train could be stopped. And so on over nearly every mile of the road something of this kind is brought to mind, as his thoughts follow the circle of light ahead, which flashes and changes constantly, now shining on a bridge, now showing an embankment, flashing its rays now on a house and now through trees and foliage, and if the man is easily worried or bothered, he gets very nervous indeed, and wishes he was at the end of his trip. Anywhere, off of the rail. Why, I've known men to give up the best trains on the road, and big pay, because they had to run in the night-time and take trains that were much harder to run, and poorer pay, simply because the latter run in daylight. Yes, engineers do sometimes get frightened and lose nerve, and it is not to be wondered at when we think of his standing one hand on the throttle and the other on the reverse lever, with his thoughts going back to incident and accident of his busy and hazardous life, on each curve and straight line of the road, as revealed by the head-light of his engine."—*Port Jervis Gazette.*

RAILROAD EARNINGS IN JUNE.

Name of Road.	Mileage. 1883.	1882.	Inc.	Dec	P.c.	Earnings. 1883.	1882.	Increase.	Decrease.	P. c.	Earnings Per Mile. 1883.	1882.	Inc.	Dec.	P. c.
						$	$	$	$		$	$	$	$	
Ala. Gt. Southern	290	290	....	....	.....	72,176	54,496	17,680	.....	32.4	249	188	61	.....	32.4
Atch., Top. & SantaFe	1,820	1,804	16	....	0.9	1,103,000	1,153,479	.....	50,479	4.4	606	639	....	33	5.0
Bur., Ced. Rap. & No.	714	645	69	....	10.7	216,615	211,256	5,359	.....	2.5	303	328	....	25	7.7
Central of Georgia	726	712	14	....	1.9	150,500	128,754	21,746	.....	16.9	207	181	26	....	14.4
Central Iowa	330	290	40	....	13.8	93,535	100,629	.....	7,094	7.1	283	347	....	64	18.3
Central Pacific	2,972	3,006	....	34	1.1	2,082,000	2,229,105	.....	147,105	6.6	701	742	....	41	5.5
Ches. & Ohio	517	511	6	....	1.2	326,525	271,381	55,144	.....	20.3	632	531	101	.....	19.1
Eliz., L. & Big San.	130	130	.....	.....	.....	58,944	37,401	19,543	.....	52.6	438	288	150	.....	52.6
Chicago & Alton	850	850	.....	.....	.....	653,539	617,250	36,289	.....	5 9	766	726	43	.....	5.9
Chi. & Eastern Ill	245	245	.....	.....	.....	143,215	132,601	10,614	.....	8 0	585	541	44	.....	8.0
Chi., Mil. & St. Paul	4,523	4,260	263	....	6.2	2,023,000	1,691,430	331,570	.....	19.6	447	397	50	.....	12.6
Chi. & Northwestern	3,500	3,250	340	....	10.4	2,175,325	2,043,475	131,850	.....	6.5	606	629	....	23	3.7
Chi., St. P., M. & O	1,230	1,040	190	....	18.3	428,934	374,694	54,240	.....	14.5	348	360	....	12	3 3
Chi. & West Mich	404	367	37	....	10.1	134,882	86,542	48,340	.....	55.6	334	236	98	.....	41.9
Cin., Ind., St. L. & Chi.	384	384	.....	....	.....	200,855	193,372	7,493	.....	3.9	523	504	19	.....	3.9
Cin., N. O. & Tex. P	336	336	.....	....	.....	208,826	188,835	19,991	.....	10.6	622	562	60	.....	10.6
Cleve., Akron & Col	144	144	....	....	....	46,543	43,171	3,372	.....	7.8	323	300	23	.....	7.8
Connotton Valley*	140	106	34	....	32.1	30,947	17,233	13,714	.....	79.7	221	162	59	.....	36.8
Denver & R. Gt	1,643	1,066	577	....	54.8	639,600	531,700	107,900	.....	20.3	389	499	....	110	22.0
Des M. & Ft. Dodge	138	84	54	....	64.3	22,669	21,379	1,290	.....	6.0	164	255	....	91	35.7
Det., Lan. & Nor	226	226	....	....	....	131,292	134.175	.....	2,883	2.1	581	594	....	13	2.1
Eastern	284	284	.....	.....	.....	300,637	284,662	15,975	.....	5.6	1,059	1,002	57	.....	5.6
E. Tenn., Va. & Ga	1,070	900	170	....	18.9	260,864	210.995	49.869	.....	23.6	244	234	10	.....	4.3
Evansv. & T. H	146	146	....	....	....	56,220	61,619	.....	5,399	8.7	385	422	....	37	8.7
Flint & Pere Mar	347	345	2	....	0.6	206,320	160,240	46.08	.....	28.8	595	464	131	.....	28.2
Florida Transit	243	220	23	....	10.5	41,118	28 849	12.269	.....	42.3	169	132	37	.....	28.0
G'n B., Win. & St. P.	220	220	.....	....	....	34,172	30,365	3,807	.....	12 5	155	138	17	.....	12.5
Gulf, Col. & S. F	534	415	119	....	28.6	139,156	81,148	58.008	.....	71.6	261	196	65	.....	33.2
Hannibal & St. Jo	292	292	....	....	....	165,245	155,157	10,088	.....	6.6	566	531	35	.....	6.6
Ill. Cen., Ill. lines	928	919	9	....	0.9	534,174	504,159	30.015	.....	5.9	576	549	27	.....	4.9
Iowa lines	402	402	....	....	....	166,221	148.185	18,036	.....	12.2	413	368	45	.....	12.2
Southern Div	578	578	....	....	....	234,713	206.516	28,197	.....	13 6	406	357	49	.....	13.6
Ind., Bloom. & West	695	555	140	....	25.2	217,573	186,143	31.430	.....	16.9	313	335	....	22	6.6
Kan. C., Ft. S. & G	389	365	24	....	6.6	138,685	121,070	17,615	.....	14.6	356	332	24	.....	7.2
Little Rock & Ft. S	168	168	....	....	....	28,881	26,763	2,118	.....	8.0	172	159	13	.....	8.0
Little Rk., Miss. R. & T.	173	156	17	....	10.9	32 974	17,701	5,273	.....	28.4	133	113	20	.....	17.8
Long Island	354	354	....	....	....	286.665	256,701	29.904	.....	11.7	810	725	85	.....	11.7
Louisville & Nash	2,070	2,028	42	....	2.1	1,059,800	902,719	157,081	.....	17 4	512	445	67	.....	15.0
Marq., Hought. & Ont.	97	88	9	....	10.2	104,936	185,780	.....	80,844	43.5	1,082	2,111	....	1,029	49.0
Memphis & Charles	292	292	....	....	....	78,533	65,740	12.793	.....	19.4	269	225	44	.....	19.4
Mil., L. S. & West	325	275	50	....	18.2	87,265	69,568	17,697	.....	25.3	269	253	16	.....	6.3
Mo. Pacific lines:															
Central Branch	388	388	....	....	....	102,661	55,529	47,132	.....	84.2	264	143	121	.....	84.2
Int. & Gt. Northern	825	775	50	....	6.5	270,56	261.734	8,834	.....	3.4	328	337	....	9	2.7
Mo., Kan. & Tex	1,374	1,207	167	....	13.9	556.331	455 904	100,427	.....	22.0	405	378	27	.....	7.2
Mo. Pacific	1,025	900	125	....	13.9	636,726	535,689	101.037	.....	18.8	621	595	26	.....	4.3
St. L., I. M. & So	882	719	163	....	23.2	554 559	530,701	23,858	.....	4.5	629	738	....	109	14.8
Texas & Pacific	1,487	1,234	253	....	20.5	456,226	397,253	58.973	.....	14.6	307	322	....	15	4.7
Wabash, St.L. & P.*	3,520	3,350	170	....	5.1	1,148,418	1,149,683	.....	1,265	0.1	326	343	....	17	4.9
Mobile & Ohio	528	528	....	....	....	124,640	136,183	.....	11,543	8.5	236	258	....	22	8.5
Nash., Chat. & St.L.	539	526	13	....	2.4	170,660	136,704	33,956	.....	24.8	317	260	57	.....	21.9
N. Y. & N. England	399	396	3	....	0.7	293.919	285,391	8,528	.....	3 0	737	721	16	.....	2.2
Norfolk & Western	503	428	75	....	17.5	203,609	174,843	28,766	.....	15.9	405	409	....	4	0.9
Northern Central	322	322	....	....	....	476.163	465,819	10,344	.....	2.2	1,479	1,447	32	.....	2.2
Northern Pacific	1,700	1,300	400	....	30.8	788,700	704.617	82,083	.....	11.6	464	542	....	78	14.4
Ohio Central	284	232	52	....	22.4	90.097	82,665	7,432	.....	9.0	312	356	....	44	12.4
Ohio Southern	138	138	....	....	....	28,183	25,778	2,405	.....	9.2	204	187	17	....	9.2
Pennsylvania ‡	2,060	1,954	106	....	5.0	4,156,872	4,093,757	63.115	.....	1.5	2,018	2,095	....	77	3 6
Peo., Dec. & Evansv.	254	254	....	....	....	48.474	53,690	.....	5,216	9.7	191	211	....	20	9.7
Phila. & Reading	1,560	1,000	560	....	56.0	2,810,489	1,714,730	1,095,757	.....	63.9	1,802	1,715	87	.....	5.0
Rich. & Danville lines:															
Char., Col. & Aug.	238	238	.....	.....	.....	44,094	36.878	7,216	.....	19.5	185	155	30	....	19.5
Col. & Greenville	296	296	.....	.....	.....	31,755	33,240	.....	1,485	4.5	107	112	....	5	4.5
Rich. & Danville	757	757	.....	.....	.....	258,691	229.982	28,709	.....	12.5	342	304	38	....	12.5
Va. Midland	352	352	.....	.....	.....	131,313	136,026	.....	4,713	3.5	373	386	....	13	3.5
Western N. C.	190	190	.....	.....	.....	23,261	16,814	6,447	.....	38.4	122	88	34	.....	38.4
St. L., A. & T. H.:															
Main Line	195	195	....	....	.....	85,550	99 083	.....	13,533	13.7	439	508	....	69	13.7
Belleville Line	121	121	.....	.....	.....	56,110	52,948	3,162	.....	6.0	464	478	26	.....	6.0
St. Louis & Cairo	146	146	.....	.....	.....	29,599	26,021	3,578	.....	13.8	203	178	25	.....	13.8
St. Louis & San Fran.	750	660	90	....	13 6	259,917	241,226	18,691	.....	7.7	346	365	....	19	5.2
St. Paul & Duluth	210	196	14	....	7.2	125,517	89,605	35,912	.....	39.9	598	457	141	.....	30.6
St. P., Minn. & Man	1,326	912	414	....	45.4	763,806	856,418	.....	92,612	10.8	576	939	....	363	38.7
Scioto Valley	128	128	.....	.....	.....	46.433	41.872	4,561	.....	10.9	363	327	36	.....	10.9
South Carolina	243	243	.....	.....	.....	63,350	60.574	2,676	.....	4.4	260	249	11	.....	4.4
Tol., Cin. & St. L	740	490	240	....	48 9	90,000	67.647	22,353	.....	32.9	123	138	....	15	10.4
Union Pacific	4,332	3,720	612	....	16.5	2,072,000	2,202,000	.....	130,000	5.9	478	592	....	114	19.1
Vicks. & Meridian	142	142	.....	.....	.....	27,882	26.861	1,021	.....	3.5	196	189	7	.....	3.5
Vicks., Sh'vep't & P.*	73	73	.....	.....	.....	5 048	2.723	2,325	.....	86.0	69	37	32	....	86.0
West Jersey	186	168	18	....	10.7	108,697	04,448	14,249	.....	15.2	584	562	22	.....	3.9
Total, 77 roads	59,162	53,426	5,770	34	....	32,245,302	29,541.474	3,257,999	554,171	.....	545	553	...	8	.....
Total inc. or dec	.....	.....	5,736	....	10.7	.....	.....	2,703,828	.....	9.2	.....	.....	....	8	1.4

* Not in table for the six months. † Includes Utah lines. ‡ All lines east of Pittsburgh and Erie.

A Railroad in Venezuela.

Under date of June 28, the Minister of the United States to Venezuela, Mr. Jehu Baker, has made a report to the Department of State upon the successful opening of the railway from Laguayra to Caracas. The first train was brought through from the former to the latter place on June 27 at 4 p. m. Besides the President of the Republic and various Government officials, several thousand people witnessed the spectacle, which was a novel and interesting sight to many of the number, who had never before seen a railway train. The national flags of Venezuela, the United States and Great Britain were displayed from the depot and floated from the engine drawing the train. The road is about 23 miles in length, and affords many grand and beautiful views of the sea and mountain along its course.

A Ghost on the Railroad.

For some time past it has been reported that a peculiar and mysterious view occurs on dark nights on the New York Central Railroad, just west of Canajoharie. Shortly before the arrival of the fast mail train from the west, a red and a white light are seen to move slowly eastward, and as if carried by human hands. After coming a short distance to the river bridge, both lights ascend and suddenly disappear. Engineers on westward-bound trains, while taking a water supply, have noticed the lights and waited for them to disappear before moving on. Night watchmen and chronically sober men assert that this apparition can be frequently seen, but the cause is a mystery, as the effect is produced apparently without human agency.

Tramps.

Thomas Hogan, Frank Adams, B. F. Pritchard and John Ryan were stealing a ride to St. Louis on the Chicago, Burlington & Quincy Railway a few days ago. When the train reached Greenfield, Greene County, four other tramps boarded the same car, when Hogan and his crowd set upon the second crowd, robbed them, and threw them off the train, which was going at the rate of 20 miles an hour. Patrick Knight was killed and John Tincklen had his leg broken. The assaulting party were arrested and taken to Rockbridge, where Thomas Hogan was held as principal, and Adams, Pritchard and Ryan as assessories.—*Kankakee (Ill.) Gazette, July 26.*

RAILROAD EARNINGS, SIX MONTHS ENDING JUNE 30.

NAME OF ROAD	MILEAGE.					EARNINGS.					EARNINGS PER MILE.				
	1883.	1882.	Inc.	Dec	P. c.	1883.	1882.	Increase.	Dec.	P.c.	1883.	1882.	Inc.	Dec.	P.c.
						$	$	$	$		$	$	$	$	
Ala. Gt. Southern	290	290	.....	.....	.....	474,303	362,546	111,757	.....	30.8	1,636	1,250	386	.....	30.8
Atchison, Top. & S. F	1,820	1,789	31	...	1.7	6,6 0,934	6,837,348	....	206,414	3.0	3,544	3,822	.....	170	4.5
Bur., Cedar Rap. & No.	714	645	69	....	10.7	1,280.855	1,291.400	.....	10,545	0.8	1,794	2,002	.....	208	10.8
Central of Georgia	726	712	14	...	1.9	1,422,500	1,292,535	129,965	.....	10.0	1,959	1,815	144	.....	8.0
Central Iowa	330	290	40	....	13.8	577,825	546,151	31,674	.....	5.8	1,690	1,883	.....	193	10.2
Central Pacific	2,929	2,947	.....	18	0.6	11,469,479	12,155,971	.....	686,492	5.6	3,916	4,125	...	209	5.1
Ches. & Ohio	517	448	69	....	15.8	1,799.540	1,399,118	400,422	.....	28.6	3,481	3,123	358	.....	11.5
Eliz ,Lex. & B. Sandy	130	130	.. ...	.....	... .	317,549	193,471	118,078	.....	59.1	2,443	1 534	909	.....	59.1
Chi. & Alton	850	850	.....	.....	.....	3,774,978	3,434.115	340,863	.....	9.9	4,441	4 040	401	.....	9.9
Chi. & Eastern Ill.	245	245	.....	.....	..	787,071	812,358	.....	25.287	3.1	3,213	3,316	....	103	3.1
Chi. & Gd. Trunk*	335	335	.....	.....	.....	1,: 90,177	1,008 076	382,101	.....	37.9	4,150	3,009	1,141	.....	37.9
Chi., Mil. & St. Paul	4,523	4,239	284	...	6.7	10,690.000	9,137.229	1,552,771	.....	17.0	2,363	2,155	208	.....	9.7
Chi. & Northwestern	3,590	3,215	375	....	11.7	10,805,432	10,615,245	190,187	.....	1.8	3,038	3,302	.....	264	8.0
Chi., St. P., Minn. & O.	1,230	1,014	216	....	21.4	2,328,008	2,228,664	99,344	.....	4.5	1,893	2,199	.....	306	13.9
Chi. & West Mich.	404	367	37	...	10.1	755.206	719,638	35,568	.....	4.9	1,869	1,961	....	92	4.7
Cin., Ind., St. L. & Chi.	384	384	.....	.....	.....	1,168,884	1,194,455	.....	23,571	2.0	3,044	3,106	.. ..	62	2.0
Cin., N. O. & Tex. P.	336	336	.. ..	.....	.....	1,156,074	1,180,367	.....	24,293	2.1	3,441	3,513	.....	72	2.1
Cin., Wash. & Balt*	284	284	... ...	.....	.....	815,024	675,273	139,751	.....	20.7	2,870	2,381	489	.....	20.7
Cleve., Akron & Col	144	144	.....	.....	.....	250,429	235,461	14,968	.....	6.3	1,739	1,635	104	.....	6.3
Denver & Rio Grande†	1,456	1,063	393	....	37.0	3,348,600	3,112,199	236,401	.....	7.6	2,303	2,928	.....	625	21.6
Des M. & Ft. Dodge	138	84	54	...	64.3	136,407	172,057	.....	35,650	20.7	988	2.048	.....	1,060	51.7
Det., Lan. & No	226	226	.....	.....	.....	736,385	770,764	.. ..	34,379	4.5	3,258	3,410	.....	152	4.5
Eastern	284	284	.....	.....	.....	1,637,666	1,503,591	134.075	.....	8.9	5,766	5,294	472	.....	8.9
East Tenn., Va. & Ga.	1,070	900	170	..	18.9	1,787,928	1,409 893	378,045	.....	26.8	1,671	1,566	105	.....	6.7
Evansville & T. H.	146	146	.. ..	.....	.....	338.406	367,753	.....	29,347	8.0	2,318	2,579	....	201	8.0
Flint & Pere Marq.	347	345	2	....	0.6	1,258,659	1,052.167	206,492	.....	19.6	3 627	3,050	577	.....	18.9
Florida Transit.	243	192	51	....	26.6	250,478	209,077	41.401	.....	19.8	1,031	1,089	.. ..	58	5.3
Grand Trunk*	2,321	2,225	96	...	4.3	8,444,977	7,734,505	710,472	.....	9.2	3,639	3,476	163	.....	4.7
Green Bay, Win. & St. P	220	220	.....	.....	.....	191,867	179,695	12,172	.....	6.8	872	817	55	.....	6.8
Gulf, Col. & S. F.	492	378	114	...	30.2	836,700	488,187	348,513	.....	70.5	1,701	1.292	409	.....	31.5
Hannibal & St. Jo.	292	292	.....	.....	.....	1,166.882	942,560	224,322	.....	23.7	3,996	3,228	768	.....	23.7
Ill. Cent., Ill. lines	926	919	7	....	7.8	3,056,120	3,170,349	.....	114,229	3.6	3,300	3,450	.....	150	4.3
Iowa lines	402	402	.....	.....	.....	938.170	913,963	24.207	.....	2.6	2,334	2,273	61	.....	2.6
Southern Div	578	578	.....	.....	.....	1,957.160	1,556,346	400,814	.....	25.8	3,386	2,693	693	.....	25.8
Ind., Bloom. & West.	695	555	140	....	25.2	1,387,512	1,150,712	236,800	.....	20.6	1,996	2,069	.....	73	3.5
Kan. C., Ft. S. & Gulf.	389	365	24	....	6.6	880.923	770,791	110,132	.....	14.3	2,265	2,112	153	.....	7.3
Little Rock & Ft. Smith	168	168	.....	.....	.....	246,823	193,999	52,824	.....	27.2	1,469	1,155	314	.....	27.2
Little R's,Miss.R.& Tex	173	156	17	....	10.9	180,359	116.024	64.335	.....	55.4	1,042	744	298	.....	40.1
Long Island	350	342	8	....	2.3	1,079,960	978,552	101,408	.....	10.3	3,086	2,861	225	.....	7.8
Louisville & Nashv	2,041	2,028	13	...	0.6	6,344,477	5,808,128	536,349	.....	9.2	3,108	2,864	244	.....	8.5
L. Shore & Mich. S.*	1,540	1,177	163	..	13.8	9,210,616	7,952,721	1,257,895	.....	15.8	6,874	6,757	117	.....	1.7
Mar., Hought. & Ont	97	88	9	....	10.2	261,591	469,584	.....	207,993	44.2	2,686	5,336	.....	2,650	49.6
Memphis & Charleston	292	292	.....	.....	.....	563,504	492.629	70,875	.....	14.4	1,930	1,688	242	.....	14.4
Mil., Lake Sh. & West	318	275	43	....	15.6	465,315	407,543	57,772	.....	14.2	1,463	1,482	.....	19	1.2
Mo. Pacific lines:															
Central Branch	388	388	.....	.....	.....	672,396	382,311	290,085	.....	76.3	1,733	985	748	....	76.3
Int. & Gt. No	800	775	25	...	3.2	1,767,087	1,490,908	276,179	.....	18.5	2,209	1,924	285	.....	14.8
Mo., Kan. & Tex	1,374	1,207	167	....	13.9	3,317,432	2,647,326	670,106	.....	25.3	2,414	2,193	221	.....	10.1
Mo. Pacific	1,013	804	209	....	26.0	4,172,860	3,215,580	957,280	.....	29.9	4,119	3,999	120	.....	3.0
St. L., Iron Mt. & So.	882	719	163	....	23.2	3,478,400	3 231,303	247,097	.....	7.7	3,944	4,522	.....	578	12.8
Texas & Pacific	1,487	1,234	253	....	20.5	2,846,554	2,133.188	703,366	.....	33.0	1,908	1,729	179	.....	10.5
Mobile & Ohio	528	528	.....	.....	.....	965,370	878,948	86,431	.....	9.8	1,828	1,665	163	.....	9.8
Nash., Chatta. & St. L.	539	526	13	....	2.4	1,101,989	981,323	120,666	.....	12.3	2,045	1,866	179	.....	9.6
N. Y. & New England	399	396	3	....	0.7	1,628,598	1,532,483	96,115	.....	6.3	4,082	3,870	212	.....	5.5
Norfolk & Western	445	428	17	..	4.0	1,209,435	1,024,960	184,475	.....	18.0	2,716	2,395	321	.....	13.4
Northern Central	322	322	.....	.....	.....	2,944.614	2,587,711	356,903	.....	13 8	9,145	8,036	1,109	.....	13.8
Northern Pacific	1,601	1,027	624	....	60.7	3,475,758	2,659,316	816,442	.....	30.7	2,105	2,590	.....	485	18.7
Ohio Central	266	232	34	....	14.7	486,798	457,805	28,993	.....	6.3	1,830	1,973	.....	143	7.0
Ohio Southern	138	130	8	....	6.2	192,755	169,992	22,763	.....	13.4	1,397	1,308	89	...	6.8
Pennsylvania‡	2,052	1,954	98	...	5.0	24,352,586	22,650,853	1,701,733	.....	7.4	11,868	11,592	276	.....	2 4
Peoria, Dec. & Evans.	254	254	.....	.....	... .	333,989	364,272	.....	30,283	8.3	1,315	1,434	.....	119	8.3
Phila. & Reading	1,093	996	97	....	9.7	10,965,859	9,531,496	1,434,363	.....	15.0	10,033	9,570	463	.....	4.8
Rich. & Danville lines:															
Char., Col. & Aug	238	238	.....	.....	.....	393,779	333.482	60.297	.....	18.0	1,655	1,401	254	.....	18.0
Col. & Greenville	296	296	.....	.....	.. ..	366,868	335.407	31,461	.....	9.4	1,239	1,133	106	.....	9.4
Rich. & Danville	757	757	.....	.....	... .	1,764,806	1,674,618	90,188	.....	5.4	2,331	2,212	119	.....	5.4
Va. Midland	352	352	.....	.....	.....	729,257	648,762	80,495	.....	12.4	2,072	1,843	229	.....	12.4
Western N. C	190	169	21	...	12.4	146 364	95.523	50,841	.....	53.0	770	565	205	.....	36.3
St. L., Alt. & T. Haute:															
Main Line	195	195	.....	..	....	655,024	611,099	43,925	.....	7.2	3,359	3,134	225	.....	7.2
Belleville Line	121	121	.....	.....	.....	384,641	390.235	.....	5,594	1.4	3,179	3,225	.....	46	1 4
St. L. & Cairo	146	146	.. ...	..	....	178,552	170,020	8,532	.....	5.0	1,223	1,164	59	.....	5.0
St. L. & San Francisco.	733	660	73	....	11.1	1,696.972	1,513,849	183,123	.....	12.1	2,315	2,294	21	.....	0.9
St. P. & Duluth	198	196	2	...	1.0	525.224	420,504	104,720	.....	24.9	2,653	2,145	508	.....	23.7
St. P.,Minn. & Manitoba	1,301	912	389	....	42.6	3,912,541	3,631.034	281,507	.....	7.8	3,007	3,981	..	974	24.3
Scioto Valley	128	128	.....	.....	.....	242,418	240 499	1,919	.....	0.8	1,894	1,879	15	.....	0.8
South Carolina	243	243	.....	.....	.....	633,265	578,322	54,943	.....	9.5	2,606	2,380	226	.....	9.5
Tol., Ann Ar. & G. T *	61	61	.....	.....	.....	80.976	72.001	8,975	.....	12 5	1,324	1,180	144	.....	12.5
Tol., Cin. & St. L.	620	414	206	....	49.8	405,436	352,737	52,699	.....	14.9	654	852	.....	198	23.2
Union Pacific	4,332	3,720	612	...	16.5	13,154,828	13,473.771	... ...	318,943	2.3	3,036	3,622	.....	586	16.2
Vicksburg & Meridian.	142	142	.....	.....	.....	232,982	214,905	18,077	.....	8.4	1,641	1,513	128	.....	8.4
West Jersey	186	168	18	....	10.7	477,855	414.769	63,086	.....	15.2	2,569	2,469	100	.. .	4.1
Total, 79 roads	58,655	53,202	5,471	18	.....	194,486.040	178,358,522	17.880,538	1,753,020	...	3,316	3,352	.....	36	....
Total inc. or dec.	.....	.....	5,453	...	10.2	.. ..	.....	16,127,518	.....	9.0	.....	.... ..	.....	36	1.1

* Not in table for June. † Includes Utah lines. ‡ All lines east of Pittsburgh and Erie.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:

Maine Central, special meeting, in Augusta, Me., Aug. 14.

Norfolk Southern, annual meeting, at the office, No. 74 Broadway, New York, Aug. 15, at noon.

Richmond & Danville, special general meeting at the office in Richmond, Va., Sept. 12.

St. Johnsbury & Lake Champlain, annual meeting, at the office in St. Johnsbury, Vt., Aug. 15.

Dividends.

Dividends have been declared as follows:

Chicago & Alton, 4 per cent., semi-annual, payable Sept. 1. Transfer books close Aug. 15.

Connecticut & Passumpsic Rivers, 3 per cent., semi-annual, on the preferred stock, payable Aug. 1.

Kansas City, Fort Scott & Gulf, 4 per cent., semi-annual, on the preferred stock, payable Aug. 15, to stockholders of record Aug. 7.

Maine Central, 3 per cent., semi-annual, payable Aug. 15. The last dividend, in February, was 2½ per cent.

Marquette, Houghton & Ontonagon, 4 per cent., semi-annual, on the preferred stock, payable Aug. 15.

Massawippi (leased to Connecticut & Passumpsic Rivers), 3 per cent., semi-annual, payable Aug. 1.

New York, Providence & Boston, 2 per cent., quarterly, payable Aug. 10.

Railroad and Technical Conventions.

The *Executive Committee of the Southern Railway & Steamship Association* will hold a called meeting in Atlanta, Ga., Aug. 8.

The *General Baggage Agents' Association* will hold its next semi-annual meeting at the Tremont House, Chicago, Aug. 8.

The *International Association of Traveling Passenger Agents* will hold its annual convention in Detroit, Mich., Aug. 15.

The *Road-Masters' Association of America* will hold its first regular meeting in St. Paul, Minn., Sept. 12.

The *Master Car-Painters' Association* will hold its annual convention in Baltimore, Sept. 19.

The *New England Road-Masters' Association* will hold its first annual meeting in Boston, Sept. 20.

The *American Street Railway Association* will hold its next meeting in Chicago, Oct. 9.

The *American Institute of Mining Engineers* will hold its autumn meeting in Troy, N. Y., during the second week in October.

The *General Time Convention* will hold its fall meeting at the Grand Pacific Hotel in Chicago, Oct. 11.

The *Southern Time Convention* will hold its fall meeting at No. 46 Bond street, New York, Oct. 17.

The *American Association of Railroad Superintendents* will hold its fall meeting in Washington, Oct. 23.

Foreclosure Sales.

The *Philadelphia & Atlantic City* road will be sold in Camden, N. J., Sept. 25, under a decree of foreclosure granted by the Chancellor of New Jersey. The road is 3 ft. 6 in. gauge, and extends from Camden to Atlantic City, 55 miles; it was never financially successful, and has been in the hands of the trustees under the mortgage for five years past. No reports of its operations have been made. A controlling interest in the bonds is held by the Philadelphia & Reading Co.

The sale of the *Nantasket Beach* road, which was to have taken place in Boston, July 27, has been again postponed for a month.

American Institute of Mining Engineers.

The Autumn meeting of the Institute will be held in Troy, N. Y., during the second week in October. This meeting will be mainly devoted to the reading and discussion of papers.

Members who wish their papers fully discussed at the meeting can have them printed and circulated in advance, if they are sent to the Secretary, Prof. Thomas M. Drown, Easton, Pa., early in September.

Southern Railway & Steamship Association.

The following circular from General Commissioner Virgil Powers is dated Atlanta, Ga., July 25:

"The Executive Committee of the Southern Railway & Steamship Association is requested to meet in Atlanta, Ga., on Wednesday, Aug. 8, 1883, at 3.30 o'clock, p.m., to take into consideration the following questions, on which the Rate Committee could not agree, and under the agreement are referred to the Executive Committee, as follows:

"Classification of coal oil in tank cars.

"Classification of coal oil in barrels.

"Classification of paper, product of Southern mills.

"Classification of domestics, product of Southern mills.

"Classification of woolen goods, product of Southern mills.

"Basis of merchandise rates to Columbia, S. C., Atlanta, Ga., and other interior points.

"Basis of cotton rates from all points to South Atlantic ports and to Eastern cities.

"Some of these questions are important, and should be determined without delay. I, therefore, hope that every member of the Committee will attend this meeting.

"Another important question to be considered is whether or not business from Eastern cities *via* Shenandoah Line shall be pooled. Also the question of pooling, *via* that line and others, business from interior points, adjacent to Boston, New York, Philadelphia and Baltimore, to points South.

"In this connection I am gratified to report that it has been agreed between all the lines to divide, from the Southern ports, the business coming from Eastern cities to Southern ports by sail vessels and thence by rail to interior, taking effect Aug. 1, 1883.

"I have also been informed by a member of the Executive Committee that he will present the question of increasing the membership of Rate Committee."

ELECTIONS AND APPOINTMENTS.

American Railroad & Improvement Co.—At a meeting of the stockholders of this company, held at Denver, Col., the following directors were elected for the ensuing year: G. M. Dodge, Sidney Dillon, G. P. Morosini, J. T. Granger, A. H. Calef, W. C. Hall and Sidney F. Taylor.

Atlanta & West Point.—At the annual meeting in Atlanta, Ga., July 25, the following directors were chosen: W. B. Berry, J. S. Bigby, L. P. Grant, L. M. Hill, W. G. Raoul, D. M. Spear, D. R. Wadley. Mr. Wadley is the only new director, replacing C. H. Phinizy, who declined a re-election. The board elected L. P. Grant, President; Cecil Gabbett, General Manager; A. W. Hill, Secretary and Treasurer. Mr. Gabbett's title hitherto has been Superintendent.

Buffalo, New York & Philadelphia.—Mr. George A. Baker has been appointed General Freight Agent, with office in Buffalo, N. Y. He will have special charge of the local traffic, under direction of General Traffic Manager E. T. Johnson.

Chicago, St. Paul, Minneapolis & Omaha.—Mr. M. McCabe is appointed Superintendent of the Nebraska Division in place of George V. Morford, resigned. Mr. McCabe has been Train-Master of the division for some time.

Cincinnati, New Orleans & Texas Pacific.—Mr. Barnard Brown has been appointed Assistant General Freight and Passenger Agent, with office in Cincinnati, O. He was recently on the Pensacola & Atlantic road.

Danville & New River.—The following circular from President W. T. Sutherlin is dated Danville, Va., July 26: "Mr. J. P. Nelson has been appointed Assistant Superintendent of the Danville & New River Railroad, to relieve Col. G. K. Griggs, whose duties as Secretary and Treasurer require more of his time. Any courtesies extended to Mr. Nelson will be duly appreciated by the undersigned."

Galveston, Harrisburg & San Antonio.—Mr. C. W. Kouns has been appointed Master of Transportation. He was formerly on the International & Great Northern road.

James River Valley.—This company was organized at Jamestown, Dakota, July 24, with the following directors: David Curtin, J. W. Goodrich, Anthon Klaus, D. McK. Lloyd, Jeff. Smith, R. E. Wallace, E. P. Wells.

Kentucky Central.—Mr. Briggs Cunningham has been chosen Vice-President in place of John Echols, resigned.

Maine Central.—Mr. Joseph A. Linscott has been chosen Treasurer in place of J. S. Cushing, resigned. Mr. George York has been appointed Auditor to succeed Mr. Linscott.

Missouri Pacific.—Mr. M. S. Jay is appointed Division Freight Agent, with office at Dallas, Tex., and assigned to the territory on Texas & Pacific lines, El Paso to Sherman and Grand Saline inclusive, and on Missouri and Kansas & Texas extensions in Texas, north of Taylor to Denison and Gainesville inclusive.

Northern Pacific.—With the completion of the main line the distinction between the Eastern and the Pacific divisions will be abolished, and the authority of General Manager Herman Haupt will be extended over the entire line.

The office of Mr. John Muir, Superintendent of Traffic, has been removed from Portland, Oregon, to St. Paul, Minn., and his jurisdiction extended to include all the company's lines.

Rutland.—At the annual meeting in Rutland, July 31, the following directors were chosen: Charles Clement, Percival W. Clement, Rutland, Vt.; John W. Stewart, Middlebury, Vt.; Bradley B. Smalley, Wm. Willis, Rutland, Vt.; George W. Ball, Worcester, Mass.; George M. Barnard, John T. Coolidge, James O. Sargent, Boston. This is an entirely new board.

Wabash, St. Louis & Pacific.—Mr. G. W. Stevens, Superintendent of the Eastern Division, has announced the following appointments: First and Second Districts—H. C. Boughton, Train-Master, Andrews, O.; J. D. Vail, Assistant Train-Master, Toledo, O.; R. A. Houghton, Road-Master, Defiance, Ind.; A. B. Adams, Road-Master, La Fayette, Ind. Third and Fourth Districts—H. N. Coffinberry, Train-Master, Butler, Ind.; G. E. Cain, Road-Master, Butler, Ind. Fifth and Sixth Districts—E. M. Hawley, Train-Master, Peru, Ill.; F. Sullivan, Road-Master, Peru. Seventh and Eighth Districts—Z. Hamer, Assistant Train-Master, Tilton, Ill.; A. B. Adams, Road-Master, Carmi, Ill.; J. S. Stevens, Chief Dispatcher, Carmi. J. M. Gill, Assistant Train-Master, Peru, Ind., will have authority on all districts, and will report to and receive instructions from the Superintendent. J. S. Goodrich, Chief Dispatcher, Peru, Ind., will have charge of operators and distribution of cars on all districts except the seventh and eighth, with J. H. McEvoy as Assistant Chief Dispatcher.

PERSONAL.

—Gen. John Echols has resigned his position as Vice-President of the Kentucky Central Railroad Company.

—Mr. J. S. Cushing has resigned his position as Treasurer of the Maine Central Co., after several years service.

—Mr. A. E. Johnson has resigned his position as Immigration Commissioner of the St. Paul, Minneapolis & Manitoba Co. He has held the office about two years.

—Mr. George V. Morford has resigned his position as Superintendent of the Nebraska Division of the Chicago, St. Paul, Minneapolis & Omaha road, in order to take charge of the building of the projected Salina, Lincoln & Freemont road.

—Ex-Governor John B. Page, President of the Rutland Railroad Co., has brought a libel suit against Clement & Sons of Rutland, in which he claims $200,000 damages, by reason of certain statements contained in a circular distributed to the stockholders of the railroad to the effect that Page had used a balance of $80,000 of railroad money with-

out paying interest, and had fabricated a pass-book with the bank to deceive the accountant who examined the books of the railroad.

—Mr. Stephen Little, whose appointment as "Comptroller" of the New York, Lake Erie & Western Railroad was announced last week, takes with that title the oversight of the accounting department not only of the Erie, but of its leased and controlled lines—the Cincinnati, Hamilton & Dayton, and the Chicago & Atlantic—making the position one of very great importance and responsibility, for which Mr. Little's ability and character abundantly qualify him. A separate appointment also makes Mr. Little Comptroller of what is called the "Erie narrow-gauge system"—consisting of the Bradford, Bordell & Kinzua, the Bradford, Eldred & Cuba, and the Tonawanda Valley & Cuba railroads—lines chiefly in the Bradford oil region, whose accounts pass through the Erie accounting department.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:

Six months ending June 30:

	1888.	1882	Inc. or Dec.		P. c.
Chesapeake & Ohio.....	$1,706,829	$1,389,118	I.	$397,711	22.4
Net earnings	585,763	335,228	I.	200,535	59.8
Phila. & Reading.....	10,90 ,859	9,531,493	I.	1,424,366	15.1
Net earnings	4,627,178	3,811,639	I.	815,539	21.3
P. & R. Coal & Iron Co....	7,171,8 7	6,272,394	I.	899,413	14.3
Net earnings	80,056	259,134	D.	179,078	69.1
Rich. & Danville lines:					
Char., Col & Aug.....	393,779	332,821	I.	60,95	18.2
Net earnings.....	171,939	71,596	I.	101,343	144.1
Col. & Greenville.....	266,868	235,427	I.	31,441	13.4
Net earnings.....	123,123	51,710	I.	71,413	138.8
Rich. & Danville.....	1,764,4 6	1,674,6 8	I.	90,188	5.4
Net earnings.....	765,711	453,707	I.	312,004	68.3
Western N. C.....	146,364	95,523	I.	50,841	53.2
Net earnings	46,146	2 430	I.	44,656	....
West Jersey.....	477,855	414,768	I.	63,087	15.2
Net earnings.....	162,473	169,115	D.	6,642	3.9
Month of June:					
Chesapeake & Ohio.....	$323,844	$271,382	I.	$52,462	19.3
Net earnings.....	114,087	81,409	I.	32,678	40.1
Eliz., Lex. & Big Sandy..	56 022	37.402	I.	18,620	49.8
Net earnings	21,242	11, 19	I.	10.223	92.8
Phila. & Reading	2,810,480	1,714,730	I.	1,095,750	61 9
Net earnings	1,210,987	773,597	I.	437,389	56 8
P. & R. Coal & Iron Co....	1,5 8,732	1,3 3,254	I.	245,478	18 8
Net earnings..	26,257	70,778	D.	44,503	62 5
Richmond & Danville lines:					
Charlot e, Col. & Aug..	44,094	36,217	I.	7,877	21.9
Columbia & Greenville.	31,755	33.240	D.	1,485	4.5
Rich. & Danville.... ...	258,691	229,982	I.	28,709	12.5
Virginia Midland.... ..	131,313	136,626	D.	4,713	3.5
Western N. C..... ...	23,261	16,814	I.	6,4 7	37.9
West Jersey..... ...	108,697	94,448	I.	14,249	15 2
Net earnings.....	42,182	39,125	I.	3,057	7.8
Third week in July:					
Bur., Cedar Rap. & No...	$15,811	$17,373	D.	$1,562	9.3
Chicago & Alton	187,988	183,905	I.	3,183	1.7
Chi. & Eastern Illinois...	34 624	38 257	D.	3,673	9 6
Chi. & Grand Trunk.....	50,302	30,922	I.	19,380	62.5
Ft. Worth & Denver.....	8,500	.....	.....	.....	.....
Hannibal & St. Joseph..	49,000	44,800	D.	4,800	10 7
Lake Erie & Western.....	16,883	26,200	D.	9,3 7	35.8
Long Island.....	87,067	81,074	I.	5,993	7.4
Louisville & Nashville....	263,770	249,485	I.	14,291	5.7
Missouri Pacific lines....	9 9,364	899,154	I.	10,210	1.1
Northern Pacific...	184,700	156,725	I.	27,975	18.0
St. P., Minn. & Man.....	155,000	205,500	D.	50,500	24.4

Grain Movement.

For the week ending July 21 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been in bushels, for the past seven years:

Year.	North-western receipts.	—Northwestern shipments.— Total.	By rail.	P. c. by rail.	Atlantic receipts.
1877....	3,151,991	3,123,145	318,848	10 2	2,013,274
1878	4,765,172	3,652,063	1,338,719	36.7	5,003,895
1879....	4,851,503	3,1 0,422	1,545,265	30.0	7,450,637
1880.....	7,826,850	6,559,034	1,526,180	23.3	9,428,106
1881	4,950,743	4,721,037	1,868,110	39.6	6,238,474
1882.....	5,615,149	3,951,411	1,564,504	39.6	2,665,361
1883	3,826,076	3,282,404	1,038,078	31.6	2,996,882

Thus the receipts of the Northwestern markets for the week this year were 1,789,000 bushels (32 per cent.) less than in the corresponding week of last year, and smaller than in any preceding year since 1877. They were, however, 805,000 bushels more than in the previous week of this year and were the largest for four weeks. The increase over the previous week is much more in corn and oats than in wheat, which by this time last year had begun to swell the receipts, and, indeed, formed the largest part of them. The Northwestern wheat receipts for this third week of July have been for four successive years, in bushels:

1880.	1881.	1882.	1883.
3,209,337	1,198,060	3,101,184	613,570

The only effect of the new wheat crop visible this week is in the fact that, of the little wheat received, St. Louis received 48½ per cent.

The shipments of these markets for the week were 668,000 bushels (17 per cent.) less than last year, and less than in any previous year since 1877. They were also slightly less than in the previous week of this year, and were the smallest since navigation opened. At this time last year Northwestern shipments as well as receipts had begun to increase.

Atlantic receipts for this third week of July were this year 331,500 bushels more than in the corresponding week of last year, but not half as great as in 1881, and not one third as great as in 1880, and less than any other year since 1877.

There is nothing remarkable in the distribution of receipts except the very small quantity arriving at Philadelphia—only 70,890 bushels. This is a smaller amount than received in Philadelphia in any week since 1875 at least, except in two weeks of 1882, one in March and one in October.

The exports of this week to July 21 from Atlantic ports for four successive years have been:

	1880.	1881.	1882.	1883.
Flour, lbs.....	127,797	125,168	104,609	104,682
Grain, bu.....	6,237,551	3,802,390	1,813,951	1,940,966
Flour and grain, bu.....	6,812,637	4,365,655	2,284,691	2,412,035

Thus, though the exports this year were 127,000 bushels more than last year, they were 1,953,000 *less* than in 1881, and 4,400,000 less than in 1880.

Coal.

Coal tonnages for the week ending July 21 are reported as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Anthracite..	784,389	683,986	D. 100,383	14.7
Semi-bituminous.....	113,479	69,775	I. 43.704	62.4
Bituminous, Penna.....	65,280	69,272	D. 3,992	5.8
Coke, Penna.....	59,547	46,856	I. 12,691	27.1

Anthracite tonnage is very large, as is usual in the week following a half-time week. It is understood that there will be no more short time at present.

Both Cumberland and Clearfield shipments are large, although trade is reported dull. In both regions operators have large contracts to fill.

The coal tonnage of the Pennsylvania Railroad for the week ending July 21 was as follows:

	Coal.	Coke.	Total.
From line of road.....	132,500	49,867	182,367
From other roads.....	48,523	9,680	58,203
Total.....	181,023	59,547	240,570

The total tonnage this year to July 21 was 6,511,263 tons, against 6,095,933 tons to the corresponding time in 1882, an increase of 415,330 tons, or 6.8 per cent.

Cumberland coal tonnages for the seven months ending July 28 are reported by the Cumberland *Civilian* as follows:

	Tons.
Shipments from mines:	
Cumberland & Pennsylvania R. R	867,916
George's Creek & Cumberland.....	279,933
West Virginia Central & Pittsburgh.....	166.501
Direct from mines to Balt. & Ohio.....	2,013
Total...	1,316,363
Shipments out of region:	
Baltimore & Ohio R. R.	744,180
Pennsylvania R. R., Bedford Div.....	254,018
Chesapeake & Ohio Canal.....	318,165
Total.....	1,316,363

Deliveries to local points are included in the Baltimore & Ohio tonnage. The statement includes the total output, with the exception of the coal consumed at the mines for steam and other purposes.

The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the seven months ending July 28 was as follows:

	1883.	1882.	Inc. or Dec.		P. c.
Coal Port for shipment.....	56,666	46,564	I.	10,102	21.7
S. Amboy for shipment	386.814	424,508	D.	37,694	8.9
Local points on N. J. divs....	439,115	403,779	I.	35,336	8.7
Co.'s use on N. J. divs.....	85,299	73 913	I.	11,386	15.4
Total..... 967,894		948,764	I.	19,130	2.0

Of the total this year 780,674 tons were from the Lehigh Region, and 187,220 tons were from the Wyoming Region.

Pittsburgh dispatches report that a syndicate composed of H. C. Frick, Dr. David Hostetter, Thomas Carnegie and others, of that city, and Wm. K. Vanderbilt, of New York, is buying up coke properties in the Connellsville and Westmoreland regions. The object of the syndicate is twofold, to secure such a control of the trade as will enable it to regulate prices, and to divert coke traffic to the new Pittsburgh, McKeesport & Youghiogheny road.

The anthracite companies have made a general advance of 10 cents per ton in the price lists for August, which will probably have little or no effect on actual prices.

Elevator Charges in New York.

The New York Railroad Commission has rendered a decision recommending the New York Central & Hudson River and the New York, Lake Erie & Western companies to abolish the charge of 1 cent per bushel for elevating grain from their docks to vessels.

Lake Superior Iron Ore.

Shipments of iron ore from the Lake Superior Region from the opening of navigation up to July 25, are reported by the Marquette *Mining Journal* as follows, in tons:

	1883.	1882.	Inc. or Dec.		P. c.
From L'Anse.....	25,803	24,454	I.	1,349	5.5
From Marquette...	238 973	489,186	D.	250,213	50.1
From Escanaba...	606,484	856,617	D.	250,133	29.2
From St. Ignace...	7,318	11,930	D.	4,612	38 7
Total.....	878,578	1,382,187	D.	503,609	36.4

Of the shipments from Escanaba 168,361 tons were from the Marquette District, and 438,123 tons from the Menominee District.

Besides the ore shipped from the Marquette District, 5,654 tons were delivered to local furnaces. Shipments of pig iron were 1,299 tons.

Southern Railway & Steamship Association.

In the matter referred by the meeting, held at St. Louis, May 21, 1883, in the following resolutions:

"*Resolved*, That the earnings from business, from and beyond Cairo, Columbus, Hickman, Memphis, Vicksburg, Evansville, Louisville and Cincinnati, to Nashville, Chattanooga and competitive points east of the Mobile & Ohio Railroad, and south of the Memphis & Charleston Railroad, passing over the Memphis & Charleston, Mobile & Ohio, Nashville, Chatanooga & St. Louis, Louisville & Nashville and Cincinnati Southern Railways, be pooled and divided between the lines in interest.

"*Resolved further*, That each line in interest prepare statistics of business transacted for two years prior to April 10, 1883, to be submitted with arguments, on July 1, 1883, to arbitration by John Screven, W. R. Arthur and T. H. Carter (the old Board of Arbitration of the Southern Railway & Steamship Association), and that they be requested to decide the question within 10 days thereafter, the divisions to take effect from May 21, 1883."

Together with the verbal reference by the Louisville & Nashville and the Chicago, St. Louis & New Orleans railroads of the divisions of New Orleans business, the arbitrators, as named in the resolutions above, after examining and considering all the statistics presented, and listening to arguments, have arrived at the following conclusions:

DIVISIONS.

NEW ORLEANS, LA.—Louisville & Nashville Railroad, 90 per cent. Chicago, St. Louis & New Orleans Railroad, 10 per cent.

VICKSBURG, MISS.—Vicksburg & Meridian Railroad, 100 per cent.

MEMPHIS, TENN.—Memphis & Charleston Railroad, 100 per cent.

COLUMBUS, KY.—Mobile & Ohio Railroad, 55 per cent. Nashville, Chattanooga & St. Louis Railway, 45 per cent.

LOUISVILLE, KY.—Louisville & Nashville Railroad, 100 per cent.

CINCINNATI, O.—Cincinnati, New Orleans & Texas Pacific Railway, 70 per cent. Louisville & Nashville Railroad, 30 per cent.

EVANSVILLE, IND.—Louisville & Nashville Railroad, 100 per cent.

CAIRO, ILL.—Nashville, Chattanooga & St. Louis Railway, 65 per cent. Mobile & Ohio Railroad, 20 per cent. Chicago, St. Louis & New Orleans Railroad, 15 per cent.

Hickman, Ky., is omitted because the Board has been informed the line from there has been practically abandoned.

Having no statistics of business to Nashville, the Board takes no action in reference to that business.

Theatrical Baggage.

The following circular has been issued by Mr. John J. Byrne, Secretary of the Chicago Railroad Association, Passenger Department, dated Chicago, July 23:

At a meeting of this Association, held on above date, the following resolutions were ordered printed for the information of the dramatic profession:

Adopted Feb. 1, 1883.

"No piece of baggage weighing more than 250 pounds will be accepted for transportation as baggage, or will be transported in baggage cars."

Adopted May 15, 1883.

"*Resolved*, That the regulations about commercial baggage, limiting the weight of trunks to 250 pounds, be extended to include baggage or bill trunks of theatrical companies, on and after July 1, 1883."

Adopted July 23, 1883.

"*Resolved*, That from and after Aug. 1, 1883, pianos and organs weighing more than 250 pounds, horses, mules, ponies, donkeys, wagons or carts, carried by theatrical, concert or show companies, will not be carried in baggage cars. Should any such property be tendered for shipment in baggage cars, the owner or person in charge must be referred to the express company, or freight department. Pianos or organs weighing 250 pounds or less, may be carried in baggage cars, if accompanied by the troupe, but then only at owner's risk of damage, loss or delay."

Agreed to by the following roads: Chicago, Rock Island & Pacific; Chicago, Burlington & Quincy; Chicago & Alton; Illinois Central; Wabash, St. Louis & Pacific; Chicago & Northwestern; Chicago, Milwaukee & St. Paul.

Rules for the Transfer of Diverted East-Bound Freight at Chicago.

The rules to govern the transfer of freight to settle freight balances at Chicago under the new agreement are as follows:

First—The Joint Agent shall be authorized to direct Western roads to deliver from time to time, as it becomes necessary in order to even up tonnage balances, any class of freight consigned from the West to any road in excess at Chicago to any road in deficit; the Joint Agent shall, however, exercise his discretion as to the classes and kind of freight that shall be transferred, and for that purpose he shall consult with the representatives of the roads in interest. The Joint Agent shall furnish all roads in interest in the east-bound pool copies of his notices to Western roads for the guidance of such Eastern roads.

Second—Roads "over" shall turn over to the roads "short" any class of freight so ordered by the Joint Agent, and if called upon to do so shall deliver to the roads "short" orders on elevators, packing-houses, warehouses, etc., and the road "short" shall be permitted under the terms of the pooling agreement, except as hereinafter provided, to forward such diverted freight to destination by any route it may designate, or as the trunk line balances may require.

Third—The road "short" shall forward and route the freight received from the road "over" as the road "over" may direct when it includes freight that may be stopped off short of original destination, or which cannot be delivered to consignee except by the line by which it was originally consigned.

Fourth—Line cars of the road "over" may be run through by the road in deficit, if such line cars are received at Chicago from a Western road, loaded, if the road owning the line cars consents; the road in deficit to pay the usual mileage on said line cars. If the road in deficit sees fit to transfer such line freight, it shall be entitled to do so.

Fifth—The road in deficit shall be put to no expense by the road "over" in evening the balances, other than such as are ordinarily incurred in handling the business, and such as would have to be paid by the road in deficit if it had solicited and procured the freight.

Sixth—The evening of balances at Chicago shall be made in freight destined to New York, Boston, Philadelphia, or Baltimore for domestic use, or for export, or when agreed to by the line "short," in freight consigned to Toronto and east thereof, or to the western termini of the trunk lines.

OLD AND NEW ROADS.

American Railroad & Improvement Co.—At a meeting of this company held in Denver, Col., last week, the President was instructed to have the work on the Atchafalaya bridge on the New Orleans Pacific road pushed as fast as possible, and on its completion to take the necessary steps to dissolve the company and wind up its affairs.

Atchison, Topeka & Santa Fe.—The *Mexican Financier* of recent date says: "The Atchison, Topeka & Santa Fe Railroad Co., through its special agent in this city, Mr. George B. Harris, in conjunction with the resident Sonora Railway Director, Sr. Sebastian Camacho, has secured some important modifications of the concessions of the Sonora Railway. The time for the building of the lines of the company from Hermosillo to Paso del Norte and from Hermosillo to Alamos has been extended to six years, giving two years for making the surveys and four years for completing the roads. A uniform increase of the freight and passenger tariffs by half a cent a kilometer is authorized. The line is divided into five sections, Guaymas to Hermosillo, Hermosillo to Almos, Hermosillo to Nogales, and Hermosillo to Ures and Paso del Norte. The line from Hermosillo to Alamos may begin at any point between Guaymas and Hermosillo which may be found convenient, with the previous approval of the Minister of Public Works. The company is authorized to transfer the concessions for its lines to any other company or companies. The company is obliged, for the new concession, to pay $80,000 to be applied to the industries of mining and agriculture. The time for beginning the new lines had already expired, it having been impossible to make the surveys on account of hostile Indians in the Sierra Madre."

Atlantic & North Carolina.—At the adjourned meeting held in Morehead City, N. C., to consider the various propositions made for the lease of the road, an injunction against taking any further steps toward a lease was presented. The injunction is a preliminary one, granted in a suit begun by William E. Christian, a stockholder, in the United States Circuit Court, his complaint claiming that the stockholders have no legal right to dispose of the property. The meeting, therefore, took no action, except to adjourn until December, by which time it is expected that the suit will be decided.

Bangor & Piscataquis.—Work is progressing well on the extension of this road from Blanchard, Me., to Moosehead Lake. The grading is nearly finished from Blanchard to Shirley Mills, and considerable work has been done on the upper end, from West Cove eastward.

Bayfield Transfer.—This company has been organized to build a road from Bayfield, Wis., northeast three miles to a point on the lake shore.

Bell's Gap.—Arrangements are being made to change this road from 3 ft. to standard gauge, and the change will be made in September. The company advertises its narrow-gauge equipment for sale.

Brunswick & Western.—It is again reported that the controlling interest in this road has been sold to the Central Railroad Co., of Georgia. A similar report was noted several weeks ago, but the negotiations at that time fell through.

Carolina Central.—In the suit of Mrs. Virginia Matthews, of New York, against this company, the Court has decided against the plaintiff, holding that she had consented to the reorganization and that the sale of a majority of the stock to the Seaboard & Roanoke and the Raleigh & Gaston companies was a valid and legal transaction. The case, it is said, will be carried up to the United States Supreme Court on appeal.

Chesapeake & Ohio.—It is stated that the trouble over the connecting track with the Chesapeake, Ohio & South-

western in Louisville, Ky., has been settled, the property owners who opposed its construction having given way. They have withdrawn the injunction suits, and have accepted the company's offer of compromise.

The company's statement for June and the half-year ending June 30 is as follows:

	June		Six months	
	1883.	1882.	1883.	1882.
Earnings	$323,844	$271,382	$1,796,859	$1,399,118
Expenses	209,757	189,973	1,261,096	1,063,890
Net earnings	$114,087	$81,409	$535,763	$335,228

For the half-year there was an increase of $397,741, or 28.4 per cent, in gross earnings; an increase of $197,206, or 18 5 per cent., in expenses, and an increase of $200,535, or 59.8 per cent., in net earnings. The expenses were 70.18 per cent. of gross earnings this year, against 76.04 per cent. last year.

Chicago & Alton.—At a meeting of the board in Chicago Aug. 1, the usual 4 per cent. half-yearly dividend was declared. The by-laws were amended so as to provide that transfers of stock can be made in Chicago as well as in New York. It was stated that assents in writing had been received to the consolidation of the St. Louis, Jacksonville & Chicago with this company from holders of over four-fifths of the stock.

Chicago, Milwaukee & St. Paul.—Work is progressing very rapidly on this company's new James River line in Dakota. On the southern end the grading is done for some 20 miles northward from Mitchell. On the northern end the grading is done from New Ashton, Dak., the terminus of the branch built from Aberdeen last year, southward 15 miles, and track is laid to Redfield, 9 miles from Ashton and 42 miles from Aberdeen.

Chicago & Northwestern.—On the new branch from Batavia, Ill., south to Aurora, 7 miles, the track is now all laid. The work of ballasting is in progress, and the road will soon be opened for business. The branch is parallel to the Geneva Branch of the Chicago, Burlington & Quincy. It is an extension of the Batavia Branch of the Northwestern, and the distance by it from Chicago to Aurora is 45½ miles.

Cincinnati, New Orleans & Texas Pacific.—This company has let contracts for 55 new passenger cars and for a number of heavy passenger engines. This has been done par ly on account of the increased passenger travel, and partly with the intention of attracting still more by running fast trains between Cincinnati and Chattanooga, in competition with other lines. When the new passenger equipment is received, that now in use will be sent down to the New Orleans & Northwestern and the Alabama Great Southern roads.

Cincinnati, Washington & Baltimore.—A suit has been begun in the Court of Common Pleas of Highland County, O., by certain holders of securities of the old Hillsboro & Cincinnati Co., which at one time owned 16 miles of what is now the main line of this road, from Blanchester to Loveland. The Marietta & Cincinnati Co. many years ago bought a controlling interest in the company, and its organization was afterward suffered to lapse, but the parties for whom the present suit is brought claim that they still have an interest in the line, and ask to be recognized. The suit is brought in the name of the city of Cincinnati, because the city had a claim against the old company.

Columbus, Hope & Greensburg.—Tracklaying has been resumed on this road and the company hopes to have the road completed from Greensburg, Ind., to Columbus next month.

Connotton Valley.—The certificates of the Boston Car Trust Association and the Cleveland Terminal Trust Association will soon be ready for delivery to the subscribers. Both classes of certificates bear 8 per cent. interest, and the principal is payable in yearly installments, the property covered by them becoming the property of the company when the payments are completed. The Car Trust subscriptions amount to $40,000, and the last installment is payable in 1889. The Terminal Trust subscriptions were $281,400, and it will be closed in 1890, if the payments are made as agreed.

Eastern.—This company reports its gross earnings as follows for June and the nine months of its fiscal year from October 1 to June 30:

	1883.	1882.	Increase.	P.c.
June	$300,637	$284,662	$15,975	5.6
Nine months	2,481,383	2,332,541	148,842	6.4

The stockholders of the company who are opposed to the lease to the Boston & Maine presented last week an elaborate argument to the Railroad Committee of the New Hampshire Legislature against the passage of the proposed general railroad law, under which the lease would be authorized.

Eastern Junction, Broad Sound Pier & Point Shirley.—This road is now completed to Point Shirley, Mass., 2 miles beyond the late terminus at Ocean Pier and 4½ miles from the junction with the Eastern Railroad. The road will be operated by the Eastern Railroad Co., and a ferry will be established between Point Shirley and Boston, so that connections can be made in both directions, with the main line of the Eastern from Point Shirley, and with the ferry for Point of Pines and Lynn.

Easton & Bangor.—The stockholders of this new company have voted to fix the capital stock at $400,000, and also to authorize the issue of bonds to the amount of $400,000, to be secured by mortgage on the property.

East Tennessee, Virginia & Georgia.—The negotiations between this company and Mr. Gould are apparently at an end, and the proposed consolidation or alliance with the Missouri Pacific system is no longer probable.

As noted elsewhere, the prospect is now for a close alliance with the Richmond & Danville system, the owners of this company having acquired a large interest in the Danville road.

Grand Trunk.—This company's Michigan Air Line Branch is now completed to South Lyons, Mich., 24 miles west by south from the late terminus at Pontiac, and 60 miles from its starting point at Ridgeway. At South Lyons the branch connects with the Toledo, Ann Arbor & Grand Trunk road.

Hartford & Connecticut Western.—Since this company bought the Rhinebeck & Connecticut road its connection with that line has been made by the use of the New York & Harlem track between Millerton and Boston Corners. Recently, however, the company concluded a long lease of the Poughkeepsie, Hartford & Boston track between State Line and Boston Corners, 7 miles, and thus has the entire line from Hartford to the Hudson River under its own control.

This company offers for sale $200,000 new 5 per cent. bonds having 20 years to run. Proposals for these bonds will be received at the United States Bank in Hartford, Conn., until Aug. 15 next.

The work of improvement on this road has been steadily carried on and 62 miles are now laid with steel rails, leaving 50 miles of iron to be replaced. A number of passenger and freight cars have been added to the equipment.

Illinois Central.—The second track on the main line is now in use from Chicago to Monee, 34 miles.

James River Valley.—This company has been organized to build a railroad from Jamestown, Dakota, southward through the James River Valley. The project also includes an extension of the road southward, either to Sioux City or Fort Dodge. Work on the first section from Jamestown south is to be begun at once.

Lackawanna & Pittsburgh.—Work is progressing steadily on the grading of this road from the junction with the Delaware, Lackawanna & Western at Perkinsville, N. Y., west to Belfast. About two-thirds of the grading is done, and work is in progress for the bridges over the Erie road and over White and Black creeks and the Genesee River. From Angelica westward the grading is all done, except in two heavy cuttings.

Lake Erie & Western.—It is announced that this company has arranged for a loan of $500,000, the money to be used to meet pressing liabilities and to continue the work of laying steel rails.

Little Rock & Fort Smith.—A branch of this road has been completed and opened for business from Russellville, Ark., south to Dardanelle on the Arkansas River, a distance of 5 miles.

Little Rock, Mississippi River & Texas.—Negotiations are in progress for the extension of this company's Ouachita Division from its present terminus at Warren, Ark., westward about 50 miles to Camden, on the Ouachita River.

Louisville, Evansville & St. Louis.—It is stated that President Mackey, of the Evansville & Terre Haute Co., who has been in conference with the officers of this company in Boston, has made two propositions, one for a lease of the road, and the other for the purchase of a controlling interest in the stock. No decision has been reached on either of these propositions. It is also reported that an offer has been made for the controlling interest in behalf of the Chesepeake & Ohio.

Louisville & Nashville.—The directors of the Pensacola Railroad Co. who were in office when it was sold to the Louisville & Nashville have formally declared themselves to be now in possession of the property. Their action is based upon an alleged failure of the Louisville & Nashville Co. to fulfill the conditions on which it acquired the road.

Louisville, New Orleans & Texas.—A contract has been let to Dunavant & Kelly, of Memphis, Tenn, for all the unfinished work from the Louisiana State line north to Natchez, Miss. The contract includes some heavy cuts and fills.

Mexican Central.—During the six months ending June 30 there was laid on the Chihuahua Division, under charge of Chief Engineer Lewis Kingman, 148.5 miles of track, as follows: In January, 17.3 miles; in February, 17.6; in March, 43; in April, 26.1; in May, 24.4; in June, 20.1; a total of 148.5 miles.

The *Mexican Financier* of recent date says: "Sr. Pablo Ocampo, government inspector for the Pacific line of the Mexican Central Railway, has submitted his report of the progress on the line during the months of April and May. For the first two kilometres from the mole at San Blas a temporary track had been laid, and they had begun to level the road-bed in conformity with the profile. The total amount of grading which had been done was 15.900 kilometres, which was within the first 21 kilometres. Within this distance the grading was only interrupted at those points where bridges will have to be constructed. The quality of the grading material was very variable in respect to its qualities of compression and cohesion; much of the work is damaged by the heavy rains and it will be necessary to replace it at the end of the rainy season with better material brought from a distance. To compensate for settling, an addition of 10 per cent. has been added to the grading. Mr. Dickson, the contractor, had received 26,000 sleepers of amapa, wood of an inferior quality found on the coast, and which would have to be replaced before the end of three years, and 32,000 pieces of redwood had arrived from California. Of rails, 70 tons had been laid on the provisional track, part of a cargo of a little more than 100 tons received by the vessel El Pacifico. To facilitate the landing of the materials three lighters had been built, and a tugboat of 75 horse-power had been received. They had finished the definite location of the line from San Blas as far as the bridge of Bellavista, three kilometres northward of Tepic, a distance of 76.265 kilometres; the distance from San Blas to Tepic will be about 83 kilometres. From a point near the Bellavista bridge two preliminary surveys had been made, the one passing to the west and the other to the east of Tepic, both directed to the same point on the divide between the valleys of Tepic and Compostela. Between this point and the mesa of San José del Conde the line has been located, passing by the town of Compostela. They had finished the study of the entrance to the cañon of the Ameca River, following the valley of the Ahuacatlan. The commission which made it, in charge of Mr. Kirchoff, together with Mr. Perry's party, were now engaged in new surveys, more detailed, for the valley of the river as far as Ameca. Another party, in charge of Mr. Francis, has been detailed to observe the currents of the Ameca River and its relation to the rainfall which its tributaries receive, for which purpose they had constructed automatic apparatus which register the height to which the river rises, and also the necessary rain gauges. On the eastern part of the line, known as the Guadalajara Division, no work has been done. In the two months from 934 to 1,324 Mexicans had been employed at the rate of 75 cents to $2.50 a day, and 93 to 125 foreigners, at $1 to $5 a day. For 41,312 days of labor in the two months, together with the salaries of 116 men paid by the month, $42,168.50 were expended. The grading, consisting entirely of vegetable mould, had cost 28 to 30 cents a cubic metre. In the engineering department 136 men had been employed altogether."

Mexican Railroad Notes.—The following notes are from the *Mexican Financier* of recent date:

It is said that Gould is not going to build a bridge across the Rio Grande at Laredo until after the summer rise is over.

The report of the railway from Vera Cruz to Anton Lizardo and Alvarado shows that the company has a capital of $1,200,000, of which 500 shares at $1,000 belong to the national treasury on account of the Medellin Railway, now the property of the company; 178 at $1,000 to the construction company; and four to the Vera Cruz government. Up to Jan. 31 subventions amounting to $336,000 were due, and $285,000 had been received, leaving $51,000 due the company.

The concession for the building of the Tamaulipeco International Railway, known as the Telfener concession, has been revised on terms more favorable to the company. The railway is to extend from Matamoras through San Fernando de Presas, Santander, Jimenez and Padilla to the city of Victoria. Another line is authorized to extend from some convenient point on the former line and running along the coast, touching the ports of Pescaderia and Tampico, terminating at Tuxpam. The main line must be finished within six years of the time of its beginning, and the Tuxpan line within eight years. A part of the board of directors, which must consist of five members, shall live in the city of Mexico, where the main offices of the company shall be established, and two of the directors shall be appointed by the President. The company is to receive a subvention of $8,000 a kilometer for the main line, and $7,000 a kilometer for the Tuxpan line, payment to begin on the completion of the first 25 kilometers, and to continue at the completion of each successive section of the same length. The company is authorized to maintain a ferryboat on the Marina River, near Pescaderia, for the transportation of trains in place of a bridge, without increasing the tariff.

Michigan Central.—Grading is now well advanced on the Welland Cut-off on the Canada Southern Division, from Welland, Ont., to Suspension Bridge, and tracklaying has been begun. Work is progressing steadily on the abutments for the bridge over the Niagara River.

When the Michigan Central assumed control of the Canada Southern, an order was issued directing that in future the road should be known as "The Canada Southern division of the Michigan Central." The rolling stock was relettered accordingly, and new stationery supplied to the various officials headed "Michigan Central, Canada Southern Division." The Dominion government has now notified the Michigan Central officials that the obliteration of the name "Canada Southern," under which the road was chartered, waives the right of the company to work under the charter. The result of the notice is that the whole of the rolling stock is to be again relettered so as to read "Canada Southern Railway, operated by the Michigan Central."

Michigan & Ohio.—The syndicate which is building this road for each subscription of $16,500 receives the following block: $15,000 first mortgage bonds, $15,000 preferred stock and $25,000 common stock. Terminal facilities have been secured at Toledo, and it is expected that the road will be running this fall.

New Orleans & Northeastern.—On the great trestle bridge across Lake Ponchartrain work is progressing steadily. The bridge is now entirely completed from the south shore for over a mile, and the foundation for the south draw is ready for the superstructure.

On the northern end of the road the track is now laid to a point 45 miles south by west from the last point noted, and 102 miles from Meridian, Miss., the starting point.

New York & Sea Beach.—The stockholders have voted to increase the capital stock from $500,000 to $600,000, the new stock to be used for improvements on the road, which is one of the short lines running to Coney Island.

New York, West Shore & Buffalo.—The Utica *Herald* thus describes the condition of the work on the principal shops of this road, at Frankfort, near Utica: "The grounds are just east of Frankfort, between the Mohawk on the north and the Erie Canal on the south. They have been so often described in these columns that an extended description is unnecessary. The strip of land averages over a mile in length, and 1,800 ft. in width. Its southern boundary is the main road running between Frankfort and Ilion. The main track runs lengthwise of this strip—east and west, leaving 750 ft. of land on the north side and 550 ft. on the south side, to be occupied by the shops, side tracks and yards. The soil is gravel and full of stones, many of them ranging from the size of cobbles to bowlders, forming the best kind of a foundation for the buildings, and the heavy work to be carried on in them. It is also full of water, plenty of which can be obtained from wells, although no water supply system for the shops has yet been determined upon. The ground on the south side of the track is higher than that on the north side. The principal work up to the present time therefore has been cutting on one side and filling on the other. In doing this work some water has been encountered, and to remove this, as well as to drain the buildings, a ditch 9 ft. deep and 1,800 ft. long, has been dug. In this a stone sewer 3 ft. square is building.

"On the west end of the land near the river a water tank is built which is supplied by pumping from the river. The pump is operated by a small steam engine. One water pipe is just above and another just below the passenger depot, so that an engine headed either way can take water while stopping at the station, without being detached from the train. Under each water pipe is a well with a stone curb cut from a solid block, and cast iron grated cover. This disposes of the waste. The river water is soft, and therefore the best for use in boilers.

"The grading for the tracks and the excavation for the building foundations is being done by Joseph Upper, of Kingston, Canada. He has about 200 men and from 50 to 60 teams engaged in the work. The men are mostly Italians; some Austrians and as many native laborers as offer their services are employed. The Italians live in shanties and board themselves, obtaining their supplies in the village. About half the teams are owned by Mr. Upper, while the rest are hired. The grading is about half completed. The sites for the principal buildings are nearly all graded and the excavation for the foundations completed. The contractor is now grading for the yards and side tracks. Considerable earth is yet to be removed along the road on the south side. The excavation for the sewer is completed.

"The tracks exist as yet only on paper, as the grading for them is not yet begun. The North River Construction Co., which builds the road, will lay the tracks. As yet it has no men on the ground. The tracks, however, as they are to be laid on these grounds, will make in the aggregate from 17 to 20 miles of single track. There are four tracks, embracing the main line and two sidings, running through the centre the entire length of grounds east and west, making over four miles of single track.

At the east end a branch leaves the main track, running diagonally to and along the southern boundary of the grounds, connecting with the main track again at the west end of the grounds. From this branch there are other branches, running to all the various buildings on the south side of the track. At the east end of the grounds there will be a lumber yard, with this branch running diagonally through the centre. The branch at this point is crossed by four other branch tracks, three of which are each 1,200 ft. long, and one 600 ft. long, making 4,200 ft. of siding in the lumber yard. One track runs to the planing mill. North of this there will be a shed for repairing freight cars. Eight side tracks will run through this repair shed or shop. Further west on the branch, there are branch tracks running to or into the blacksmith shop, boiler house, foundry and erecting shop. Six sidings run into the paint shop. Six radiate from the turn table into the various buildings. These are all on the south of the main track.

"On the north side of the main track, there are 13 side tracks, each about 3,600 ft. long. Two of them run to the

turn table in front of the round house. Four of them are continued to the freight house, which is near the western end of the grounds, and two of these are continued to the extreme western boundary of the lot. As thus far only one of the main tracks is laid without being ballasted, it will be seen that considerable yet remains to be done, and that quite a large force of men will find work in doing it.

"The buildings will be 13 in number, although two of them—the passenger and freight depots—are not to be included in the shops properly. The buildings pertaining to the shops are: Office, foundry, blacksmith shop, boiler shop, main erecting shop, storehouse, planing mill and round house; the contracts for which, as well as the contracts for the passenger and freight depots, have been let; the paint shop, shop for worked wood and freight car repair shed, the contracts for which have not been let.

"A pattern shop will undoubtedly be erected, although its location has not yet been determined.

"Altogether about seven million brick will be used, and the capacity of all the yards from Utica to the Hudson will be tested in furnishing them. The brick are sent by canal, and carried to the grounds on a narrow-gauge road in small cars.

"The sand for building purposes will be hauled from the hill opposite the site of the shops on the north side of the Mohawk.

"About 100 teams are at present engaged in hauling stone.

"The contracts say the buildings are to be completed by Jan. 1 next. The work is of such magnitude, however, and the preliminary work has been so much delayed by rains, that it will hardly be possible to fulfill the contract in this respect. Large quantities of iron and lumber will be needed and but little of these have yet arrived."

Northern Pacific.—Work is being pushed as rapidly as possible on the line from Portland, Oregon to Kalama, which will complete the rail connection between Portland and Puget Sound at Tacoma. Most of the grading is finished and tracklaying is in progress, the principal work remaining to be done being the inclines on both banks of the Columbia River, which is to be crossed by ferry. The distance from Portland to Kalama is 43 miles. The ferry boat to be used at the Columbia crossing will be finished in October.

Ottumwa, Cedar Falls & St. Paul.—This company has been organized to build a railroad from What Cheer, Ia., northward to the Chicago & Northwestern near Belle Plaine, about 40 miles. The new company is organized in the interest of the Northwestern Fuel Co., which has extensive mines at What Cheer, and desires the new road to make it independent of the Burlington, Cedar Rapids & Northern. That company and the Northwestern Fuel Co., it will be remembered, have just had a lawsuit involving a large amount, in which the Fuel Co. was defeated.

Pacific Coast.—This road is now in operation from Port Harford, Cal., to Los Alamos, 64 miles, having been extended from Santa Maria to Los Alamos, 21¼ miles, near the close of last year. It is the purpose of the company to begin work in the spring on an extension from Los Alamos to Santa Barbara, about 80 miles.

Pennsylvania.—This company is having surveys made for a branch line from Manor station, on the main line, north by east to Saltsburg in Indiana County, Pa., on the West Pennsylvania Division. The distance is about 20 miles, and the line will open up some valuable coal lands.

A contract has been let for a second track on the Houtzdale Branch of the Tyrone Division, from Osceola, Pa., to Goss Run Junction. It is needed to accommodate the heavy coal traffic.

The Philadelphia *Ledger* of July 28 says: "The Pennsylvania Railroad is actively engaged in making substantial improvements on its main line and branches connecting therewith. Not only has the passenger business been very largely increased during the past few years, but the freight traffic has become almost a burden on the main stem. To accommodate this growing business it has been found necessary to shorten the distance between Philadelphia & Pittsburgh. By straightening the lines, cutting curves off where possible and building new branches much mileage has been saved. The right of way for a fourth track has been secured on the eastern end as far as Coatesville, and the track has been laid almost to Wayne station. Near Harrisburg some important additions have been made to the company's facilities for handling freight. Purchases of land have been made, freight yards are being arranged, and at some places additional tracks are being constructed. The improvement of the West Pennsylvania Division, which is intended to relieve in part the overcrowded Pittsburg Division and Pittsburgh yards, by taking through traffic, is nearing completion. It involved the reduction of its maximum grade from 52 to 21 ft. per mile. One of the most important pieces of work, the Salina tunnel, is finished. It has probably the largest section of any tunnel in the world, being 28 feet wide at springing line and 20½ feet above tie at centre of tunnel. It is 1373.2 feet in length, two-thirds of which is on a six-degree curve, the remainder on tangent. The tunnel headings, driven from each end, met midway on the curved portion, and when the lines were produced through the aperture they struck within a half inch—practically exact. One hundred feet from eastern portal the line crosses the Kiskiminetas River on a handsome iron bridge.

"The Pennsylvania Railroad is perfecting the plans for an extensive freight station on Delaware avenue south of Vine street. Two piers have been purchased, and extensive alterations and improvements will be made by which they will be extended to the Port Warden's line and the necessary buildings be erected on them. Sidings will run in from the River Front Railway, and freight cars will also be brought there on floats, so that freight can be received or shipped to all parts of the Pennsylvania Railroad system on either side of the river. This will be a great convenience to shippers in the upper part of the city, and, when the new station is opened, it will afford great relief to teaming on Delaware avenue, as much of the present carting will be avoided."

This company has let a contract for a bridge across Barnegat Bay to Island Heights, N. J., on the sea shore. It is said that the branch to Island Heights will be extended northward along the shore to a junction with the Long Branch line, making a loop or second line from near Tom's River to Manasquan.

The Phoenixville & West Chester Branch was opened for traffic Aug. 1, the track being now all laid and ballasted. It is 11 miles long, running from Frazer station on the main line, northwest to Phoenixville, Pa. It will be part of the new line to Reading.

Pittsburgh, Cincinnati & St. Louis.—Notice is given that holders of Steubenville & Indiana bonds maturing Jan. 1, 1884, will have the option until Sept. 29 next of extending them as registered bonds for 30 years from date of maturity. Holders desiring to avail themselves of this option will present the bonds at the office of the Treasurer in Philadelphia, and will then receive the interest due Jan. 1 next, without rebate.

Philadelphia & Reading.—This company's statement gives the following figures for June and the seven months of the fiscal year, from Dec. 1 to June 30, the operations of the leased Central Railroad of New Jersey being included from June 1 of the current year:

	June.		Seven Months.	
	1883.	1882.	1883.	1882.
Earnings	$2,810,489	$1,714,730	$12,761,934	$11,382,385
Expenses	1,599,502	941,333	7,295,240	6,696,835
Net earnings.	$1,210,987	$773,397	$5,465,994	$4,685,550
Coal & Iron Co.				
Earnings	1,548,732	1,303,254	8,241,636	7,653,182
Expenses	1,522,456	1,237,476	8,156,405	7,327,117
Net earnings.	$26,276	$70,778	$85,231	$326,065
Both companies:				
Earnings	4,359,221	3,017,984	21,002,870	19,035,567
Expenses	3,121,958	2,173,809	15,451,645	14,023,952
Net earnings.	$1,237,263	$844,175	$5,551,225	$5,011,615

The Railroad Co. shows for the seven months an increase of $1,378,849, or 12.1 per cent., in gross earnings; an increase of $598,405, or 8.9 per cent., in expenses, and an increase of $780,444, or 16.6 per cent., in net earnings. Of the gross increase $1,012,634, and of the net increase $451,349 were derived from the Central Railroad operations in June, as shown below.

The Coal & Iron Co. increased its earnings for the seven months $588,454, or 7.7 per cent., but its expenses increased at the same time $829,288, or 11.3 per cent., leaving a loss of $240,834, or 73.9 per cent., in net earnings. The net earnings this year have been only 1.03 per cent. of the gross receipts.

The result for both companies has been a gain of $1,967,303, or 10.3 per cent. in gross earnings; an increase of $1,427,695, or 10.2 per cent. in expenses, and a gain of $539,610, or 10.7 per cent. in net earnings. If, however, the Central earnings be deducted, the two Reading companies show for the seven months a gain of $954,669, or 5.0 per cent., in gross earnings, and a gain of $88,261, or 1.8 per cent., in net earnings.

The expenses as given above do not include anything for interest or rentals, the net earnings being the amounts from which those charges are to be paid by the company.

The division of earnings for June between the road worked up to June 1 and the Central lines is as follows:

	Reading.	Central.	Total.
Earnings	$1,797,855	$1,012,634	$2,810,489
Expenses	1,038,217	561,285	1,599,502
Net earnings	$759,638	$451,349	$1,210,987
Central rental for the month		424,936	424,936
Balance		$26,413	$786,051

Leaving the Central earnings out, the statement of the Reading road proper shows for the month an increase of $83,125, or 4.9 per cent., in gross earnings; an increase of $96,884, or 10.3 per cent., in expenses, and a decrease of $13,759, or 1.8 per cent., in net earnings. The loss was a little more than made up by the Central surplus.

Providence, Webster & Springfield.—Work is progressing rapidly on the grading of this road from North Webster, Mass., northward along French River to North Oxford, and thence through a corner of the town of Auburn to a junction with the Boston & Albany about two miles east of Rochdale. The length of this section is 10 miles, and it is to be finished this fall. The line is generally parallel to the Norwich & Worcester road, and from one to two miles west of it. When this section is finished, the company intends to build from North Webster southward about 20 miles to Pascoag, R. I., where connection will be made with the Providence & Springfield road.

Richmond & Danville.—Extensive improvements have been made on the Air Line Division, between Charlotte and Atlanta, during the past two years. The whole line is now laid with steel rails, and the track is ballasted with broken stone, with the exception of two or three short gaps, on which the ballast trains are at work. The stone is brought from Kings Mountain, S. C., where the company has a quarry and rock breaker. The station buildings along the line have also been much improved, and are now generally in good order.

This company's statement for June and the six months ending June 30 is as follows:

	June.		Six months.	
Gross earnings:	1883.	1882	1883.	1882.
Char., Col. & Aug.	$44,094	$36,217	$339,779	$332,821
Col. & Greenville	31,755	33,240	366,868	335,407
Rich. & Danville	258,691	229,932	1,764,806	1,674,618
Virginia Midland	131,313	136,026	729,257	648,782
Western N. C.	23,261	16,814	146,364	95,523
Total	$489,114	$452,279	$3,491,074	$3,087,131
Net earnings:				
Char., Col. & Aug.	4,027	*3,916	171,959	70,596
Col. & Greenville	*8,076	*9,156	123,123	51,710
Rich. & Danville	65,352	30,617	765,711	453,707
Virginia Midland	40,805	45,106	263,502	191,657
Western N. C.	4,313	4,488	46,116	2,420
Total	$106,481	$87,139	$1,370,411	$770,090

* Loss.

The general result for all the lines was, for the six months, an increase of $313,943, or 10.2 per cent., in gross earnings; a decrease of $286,378, or 14.1 per cent., in expenses, and an increase of $600,321, or 78.0 per cent., in net earnings. All the lines show a large increase in gross earnings, and also in net earnings.

At a meeting held last week the board authorized the preparation of a statement to stockholders, showing the financial condition of the company, and the reasons for the proposed issue of $2,000,000 additional stock. It was also voted to call a meeting of the stockholders for Sept. 12 next, in Richmond.

The stock of this company has been very active of late, and it is now announced that a controlling interest in it has been bought by Messrs. George S. Scott and Wm. P. Clyde, of New York, and that a large interest is also held by George I. Seney, Samuel Thomas and C. S. Brice, members of the Seney syndicate, which controls the East Tennessee, Virginia and Georgia road. Mr. Clyde is not a new man in this company, having long been a large stockholder. The purchase of stock by the Seney party is taken to mean that there will be closer relations in some way between the Danville and the East Tennessee lines, although those roads connect directly with each other only at Atlanta and through the Western North Carolina. It is stated that at the special meeting in September there will be a general change of management, but nothing definite has been announced as to the policy of the new owners. It is said that Messrs. Scott and Clyde are opposed to the issue of new stock, and that it will not be authorized at the meeting. The Seney party have generally favored very liberal issues by the companies which they control.

Rio Grande & Pecos.—A third rail is being laid on this road from Laredo, Tex., to Santa Tomasa, 27 miles, in order that shipments of coal may be made from the mines directly in cars of either narrow or standard gauge.

Rome, Watertown & Ogdensburg.—On the night of the 27th a passenger train on the Lake Ontario Division of the Rome, Watertown & Ogdensburg road struck a box-car which had been, it is said, blown out of a siding upon the main track at Carlyon, N. Y. The train was a heavy one, consisting of two locomotives, a baggage car, smoking car, passenger coach and 8 sleeping cars, which were well filled with passengers returning from the Thousand Islands. The freight car and the first engine went down a bank, the second engine upset, the baggage and smoking cars following it off the track, while the passenger coach and the first and second sleepers, which were old, light cars, were forced into each other by the momentum of the heavy Wagner cars behind them, and piled up together in a terrible wreck. A sleeping car porter and 22 passengers were killed outright, two passengers were fatally hurt, a trainman and 28 passengers badly hurt, besides several others slightly bruised. If, as is reported, the box car had the brakes properly set and was moved entirely by the great force of the wind, the accident could hardly have been avoided, as the night was very dark, and there had been a thunderstorm just before. This is the worst accident of the year, and on a road from which very few are reported. The coroner's jury found that the brakes on the box car could not have been set, and blamed the station agent for not seeing that that were in proper position.

Rutland.—At the annual meeting in Rutland, Vt., July 31, the whole day was occupied by a very sharp discussion over the past management of the road, and the vote for directors was not taken until nearly midnight, the result not being announced until next day. The discussion was merely a recapitulation of the controversy which has been going on in print for the last few weeks.

The election resulted in the defeat of the old board and the election of the opposition or Clements ticket, which received 36,244 votes, the total number of shares represented being nearly 55,000 in all.

St. Louis & Cairo.—Work has been begun on a new branch, which is to run from Columbia, Ill., through Georgetown to Milstadt, 14 miles. It will reach what is known as the High Prairie coal field.

St. Louis, Iron Mountain & Southern.—This company has offered to build a branch from Little Rock, Ark., to Hot Springs, provided local aid is given.

Stony Clove & Catskill Mountain.—The summer time-table of this road shows six passenger trains each way between Phœnicia, N. Y., and Hunter, 14 miles. On Sundays two trains each way are run. The road is doing a heavy passenger business this year.

Telegraph Operators' Strike.—The second week of the strike has passed away without incident, nothing having occurred to change the position of parties since the American Rapid Co. compromised with its operators. The Western Union Co. still continues firm, although there is no doubt that its present service is very imperfect, and the strikers show no signs of surrender.

Texas & St. Louis.—Preparations are being made for the opening of the Arkansas Division, which will take place early in August. Through trains will then be run between Cairo and Gatesville, Tex., making close connections to and from St. Louis.

Thames River Bridge.—The commission of army and navy officers appointed to consider the question of permitting the construction of the proposed bridge over the Thames River at New London, Conn., has submitted its report, approving the plans for the bridge, as prepared by Mr. Alfred P. Boller, Consulting Engineer.

Toledo, Cincinnati & St. Louis.—The various methods tried to relieve this company from its financial embarrassments having failed, Boston dispatches state that the directors have resolved to petition the Court for the appointment of two receivers. This action has caused much discussion, and it is possible that the bondholders also may apply for the appointment of a receiver in their interest.

The Boston *Herald* says: "The company failed to secure $65,000 of the supplementary trust subscription upon which it depended, and there is said to be $50,000 of the $800,000 debenture bond subscription overdue and unpaid. Deprived of these amounts, and without the gain in earnings which had been confidently expected, there was no other way for the company to meet construction and other bills except with its notes, which, as everybody knows, merely postpone the day of settlement. There is a possibility that the earnings which are looked for this fall will, if creditors are willing to wait, enable the company to wriggle through its embarrassment, and eventually to attain to a fair degree of prosperity. * * * * *

"There has been too much mystery, likewise, about the Seney deal. The President and some of the directors even have not, it is said, understood it. There is a report that the Seney people would invest $500,000 in the road and had a plan to consolidate it with some of their properties, but neither cash nor consolidation is forthcoming and, if rumor is correct, the three Seney directors have at most only a nominal holding of the securities. It looks a little as if the movement was merely for effect. Few people, however, know anything about it except the head of a leading banking house, who originated the scheme."

In the United States Circuit Court in Chicago, July 31, an application was made for leave to file a petition for the appointment of a receiver for the road. The application was made by Grenville D. Braman, one of the heavy bondholders, who alleges that the road is so involved financially that it must stop business unless a receiver is appointed. The statement in the bill shows a bonded debt of $22,000,000, unpaid vouchers to the amount of $400,000, $2,000,000 indebtedness for which the equipment is pledged, besides a floating debt of $964,000; that a large amount of right of way will be lost unless the purchase money is soon paid, and that 500 miles of the line is mortgaged, and the creditors threaten to foreclose. Mr. Braman also alleges that the creditors will realize nothing unless a receiver is appointed at once. Mr. Dwight, the Manager of the road, acknowledged that all the property owned by the company and subject to execution had been levied upon. The Court took the papers and reserved its full decision, but intimated that the application would be granted.

West Jersey.—This company makes the following statement for June and the six months ending June 30:

	June		Six months	
	1883.	1882.	1883.	1882.
Earnings	$108,697	$94,448	$477,855	$414,768
Expenses	66,515	55,323	315,382	245,653
Net earnings	$42,182	$39,125	$162,473	$169,115

For the six months the statement shows a gain of $63,087, or 15.2 per cent., in gross earnings, accompanied by an increase of $69,729, or 28.3 per cent., in expenses, resulting in a decrease of $6,642, or 3.9 per cent., in net earnings.

Zanesville, McConnellsville & Pomeroy.—The contract for building this road from Zanesville, O., down the Muskingum River to McConnellsville, about 25 miles, has been let to Coolman & Paige, who agree to begin work in September.